DOCUMENT RESUME

ED 131 548 95 EA 008 867

AUTHOR Crecine, John P.
TITLE Report of the Study Group on Organizational Change and Adaptation to the National Institute of Education.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Aug 74
NOTE 98p.

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS Educational Policy; *Educational Research; *Interaction Process Analysis; *Organizational Change; *Organizational Theories; Organizations (Groups); Research Design; *Research Methodology

ABSTRACT

This report discusses the importance of research on the ways in which educational institutions develop and adapt to their environments and examines three different approaches for conducting such research. Most of the report is organized into three major sections, each of which focuses on a different method of organizing and structuring research on the adaptiveness of educational systems. The first section discusses using theories of organization and innovation in social systems as the basis for organizing research. The second section examines the approach of focusing on a set of processes that seem fundamental to the understanding of a particular educational system. The third section discusses the approach of exploring specific educational policies and their implications. (Author/JG)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED131548

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

REPORT OF THE STUDY GROUP ON ORGANIZATIONAL CHANGE AND ADAPTATION TO THE NATIONAL INSTITUTE OF EDUCATION

prepared by

John P. Crecine
Institute of Public Policy Studies
The University of Michigan

Points of view or opinions expressed in this report are not necessarily those of the National Institute of Education or the U.S. Department of Health, Education, and Welfare.

EA 008 867

CONFERENCE ON
ORGANIZATIONAL PROCESSES IN EDUCATION:
ORGANIZATIONAL CHANGE AND ADAPTATION
WATSONVILLE, CALIFORNIA
August 11-17, 1974

John P. Crecine* (Chairman)
Fellow, Center for Advanced Study
in the Behavioral Sciences
Stanford, California 94305

Michael D. Cohen
Institute of Public Policy Studies
The University of Michigan
Ann Arbor, Michigan 48104

Robert Hoover
Chairman of the Board
Ravenwood City School District
2160 Euclid Street
East Palo Alto, California 94304

Paul Joskow
Department of Economics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02138

Guillermo Lopez
Superintendent
Washington Unified School District
West Sacramento, California 95691

Gail MacColl
Policy Studies Program
Ithaca College
Ithaca, New York 14850

Lawrence B. Mohr**
Visiting Scholar
School of Education
Stanford University
Stanford, California 94305

Lawrence C. Pierce
(University of Oregon)
Oregon School Finance Project
Room 231, State Capitol Building
Salem, Oregon

Theodore L. Reed
Department of Sociology
Temple University
Philadelphia, Pennsylvania 19122

Stephen Weiner
School of Education
Stanford University
Stanford, California 94305

Also present at the conference were Dr. James G. March (School of Education, Stanford University), who was appointed to membership on the National Council on Education Research subsequent to the conference, and members of the National Institute of Education staff.

---

*Current address: Institute of Public Policy Studies, The University of Michigan, Ann Arbor, Michigan 48104
**Current address: Department of Political Science, The University of Michigan, Ann Arbor, Michigan 48104

Table of Contents

I. INTRODUCTION. 1

A. Need for Empirical Research 1

i. Generalizability. 5

ii. Same Conceptual Issues. 7

iii. Organization of the Report. 9

iv. Audience. 11

II. THEORETICAL PERSPECTIVES ON ADAPTATION AND CHANGE PROCESSES IN EDUCATIONAL INSTITUTIONS. 12

A. Theoretical Overview. 12

i. Membership and Institutional Goals. 13

ii. Organized Activity and "Routine" Adaptive Behavior. 14

iii. A General Note on the Evolution of Fuctional Processes. . . . 17

iv. Changes in "Routine" Behavior: Stimuli for Innovative Solutions 19

B. Special Theoretical Problems Posed by Educational Institutions 21

i. Problematic Goals and Objectives. 22

ii. Procedures and Routines 24

iii. Search Processes. 27

C. Theories of Non-Routine Organizational Change and Innovation. . . 30

i. The Organization as Focus 31

a. The innovativeness of organizations 31

b. Leadership and innovation 34

c. The process of innovation 35

ii. The Diffusion of Innovations. 36

a. Diffusion patterns. 37

b. Diffusability of an innovation 39

iii. Conceptual Issues. 40

D. Research Priorities 42

III. RESEARCH ON PARTICULAR ORGANIZATION AND EDUCATIONAL SYSTEMS PROCESSES. 45

A. Introduction 45

B. Intra-institutional Functional Processes 47

i. Resource Allocation (Budgetary) and Revenue Generation Allocation Process 47

ii. Curricular Planning Processes. 52

iii. Personnel Flows and Internal Labor Markets within Educational Organizations. 58

a. Flow of teachers and administrators through a school district. 61

b. Incentives 62

C. Parameters of and Constraints on Personnel Processes 66

D. System-Wide (Within-District) Processes. 67

i. Overview 67

ii. Structures and Adaptiveness. 69

E. Institutional Linkages 70

i. Linkages Affecting Resource Seeking and Resource Allocation in Educational Organizations. 71

ii. Linkages Affecting Curricular Planning 74

iii. Linkages Affecting Personnel Flows 79

F. Priorities 84

IV. POLICY ORIENTATION 85

V. CONCLUSION 91

I. INTRODUCTION:

Educational institutions can and should be viewed as integral parts of larger systems; a school district cannot be separated from the coalition of community and professional interests which surround it. The characteristics and processes of these institutions -- the loosely coordinated behavior of many individuals, sub-units, organizations, and groups, each with different capabilities, conceptions of the goals of education, needs, information and the like -- are important determinants of education outcomes. Our concerns here are with the ways in which education institutions develop over time and adapt to their environments. All education institutions exhibit some regularities in the way institution outputs change in response to inputs such as total revenues and student enrollments. (We do not define "outputs" narrowly in terms of end products such as "numbers of students graduated"; rather "outputs" refers more broadly to the entire range of institutional actions and responses to stimuli.) These adaptive patterns themselves change over time in response to both internal and external considerations. Better understanding of the processes of organizational development and adaptation in educational systems will increase the likelihood that intentional change -- for example, a policy intervention or program development -- will produce the intended consequences, and that anticipated changes and reactions in the behavior of public agencies will be based on more accurate conceptualizations of those agencies.

A. The Need for Empirical Research: The history of educational reform proposals provides convincing evidence that the complex of processes producing educational outcomes is poorly understood. Most reform proposals assume the simplest of models of how the educational system will adapt

to a given change in inputs, procedures or incentives, and use these simple, idealistic models to conclude the final results of reforms will constitute an improvement. Little evidence exists to support such notions and much to challenge them.

An example of the need for increased understanding of the actual dynamic properties of educational systems is found in the attempts by several states to alter their formulas for providing financial assistance to school districts. For example, several states are actively considering the adoption of educational finance formulas that not only attempt to move toward equalization of per-pupil expenditures but also tie per pupil aid within a school district to improvements in student achievement as measured by district-average test scores. Districts showing improvement over a previous set of scores would receive relatively more resources and districts showing declines would receive less. The implicit model of the way in which school districts would respond to such incentives is that:

a) somehow the district, its schools, and teachers, would agree that the tests adequately measure educational output,

b) collectively would somehow alter existing curricular programs and teaching methods so as to improve the quality of education delivered, and

c) alterations would have the desired educational effects, thereby improving district average test scores and reaping desired financial rewards.

Simple, uniform, and "appropriate" adaptation. One need not be a cynic to see the possibilities for perverse response. Districts with students from advantaged socio-economic backgrounds might easily adapt to the new financial incentives by gearing significant portions of their program to

doing well on the test; teaching to the test. Districts with disadvantaged students might easily reduce their efforts in preventing marginal students from dropping out of school altogether, on the grounds that the resultant improvement in "test score averages" and "per pupil aid" would more than offset the revenue loss due to the slight student population decline. Neither response seems appropriate. Both seem more likely than the response hypothesized by the finance reform proposal. While these possible responses to a shift in financial incentives are conjectures, they help illustrate the naive and often incorrect models of processes of change and adaptation in educational systems which are implicit in most educational reform policies and suggest the need for a substantially richer body of empirical knowledge concerning such processes. It is almost certain that the adaptation of school district activities in response to such financial "performance" incentives will not conform to expectations and that a better family of models of the mechanisms of change and adaptation in categories of school districts would lead to superior State educational finance policies.

Another class of policy questions further demonstrates the need for more complete models of the adaptive properties of educational systems. Consider Federal policies in response to an impending "Ph.D. glut" as identified by the Office of Management and Budget in the late 1960's. The Federal approach was to drastically decrease graduate student support on the assumption that a simple change in factor prices would produce a decrease in Ph.D. output--a simple, "rational" model of adaptation. Yet experience suggests that actual adaptation of universities and their students did not conform to OMB's model of the process. The aggregate

output of Ph.D.'s has not changed very much; important and often perverse differences in behavior are observed between fields and graduate institutions of varying quality; rather than fostering program innovations, the "new depression in higher education" has lead to a retreat to disciplinary-based intellectual "enclaves" as the principal form of "adaptation."* Even if OMB had worried explicitly about the distribution of reactions to their across-the-board policy, they would have had insufficient empirical knowledge of university organizations and inter-university competition for students, faculty and other resources to assess distribution impacts.

Often the realized as opposed to the hoped-for adaptatipns are the result of an internal complex of adaptations to several different factors. One of the early findings of a Rand Corporation study of the impact of the complex of Federal funding and policy decisions on medical schools suggests that reduced graduate student support in the biological sciences, while not leading to a decline in the number of graduate students did result in a greatly diminished research capability in the biological sciences and a correspondingly diminished research capability in medical schools -- all at a time during which it was Federal policy to expand medical research capacities.

The conclusion is inescapable; an important reason public policies toward education have not worked well is that we simply do not understand enough about how educational systems change. A vigorous program of empirical research on the processes of change and adaptation in educational systems is recommended.

While we have not argued so here, the current state of social science theories of change and adaptation in complex organizations is such that theoretical progress requires relatively more empirically-based research

---

*Brenneman, David, Graduate School Adjustments to the "New Depression" in Higher Education, National Board in Graduate Education, 1975.

than strictly theoretical activity. The convergence of interests between the needs of policy-relevant research on educational systems and the requirements of empirical research for more general organization theory is indeed fortunate and is a situation we recommend NIE exploit.

Because research on organizational change and adaptation is to some degree situation-specific, we use the population of organizations and systems dealing with elementary and secondary education to illustrate the discussion of theoretical approaches and substantive focii for empirical research. We wish to emphasize our firm belief that NIE should also seek to better understand organizational and system processes in institutions of higher education* and proprietary educational organizations. Not only are other educational systems important in their own right, we feel that the same general theoretical approach would be fruitful there as well. In fact, the approach should be well suited to most public sector organizations although details will differ considerably.

i. Generalizability: We have alluded above to the fact that change and adaptation in educational systems differ, to some degree at least, from system to system. In developing empirically-based theory, it is reasonable to question the domain over which the theory holds. Rather than assume, for example, that a basic process such as personnel selection is essentially the same in all educational organizations, with perhaps only the parameters

*Certainly the observed responses of various elements of the elementary and secondary educational system to declining enrollments contains important predictive lessons for anticipating the reactions of institutions of higher education to similar problems when the same population cohorts reach the age relevant for high education a few years from now.

of these processes varying from system to system, our a priori notion is that a family of processes exists; that there is a small population of processes (but more than one) to be found in the much larger population of educational systems. While the assumption that more than one personnel selection process exists in a class of educational systems seems self-evident, it is important to recognize that the intellectual traditions of social science are heavily biased toward the extremes on the generalizability question; every system is unique (case studies) or the fundamental processes in every system of a given type are the same (cross-sectional studies).

The degree of generalizability of the results of empirical research on processes of change and adaptation in one educational system to other educational systems is a problem of fundamental importance to scholars and practitioners. A school district official would like to be able to judge the probability that a finding in another system is applicable to his own. Policy makers would like to know which previous policy experiences are suitable precedents for the problem they currently face.

Consequently:

Recommendation 1. We urge that any NIE research program undertaken devote some resources to the fundamental problem of the generalizability of the findings concerning the adaptive processes found in classes of educational organizations.

Given the fact that dynamic processes (like "change" and "adaptation"), by their nature, require time-series data for understanding their properties, and the generalizability question involves issues of appropriate stratification over a population of organizations and their component processes on appropriate research strategy on generalizability

would involve some pooling of cross-sectional and time-series* data.**

Theoretical development of families of models must go hand in hand with empirical study if the education community is to derive full benefit from the research produced.

ii. Some Conceptual Issues: There is more than a little ambiguity in and out of the academic community over the precise meaning of such terms as "organization," "change" and "adaptation." While much of the ambiguity stems from the context within which such terms are used and from the situation-specific nature of much of the phenomena labeled "organizational," we can perhaps provide some clarification by sharing some of the premises about the nature of public sector organizations and systems which we accept, especially as they relate to the processes of change and adaptation in educational systems.

By "organization" is meant nothing more or less than the systematic, purposive interaction of people and resources that produce outcomes. This means, for instance, that the "organization" often encompasses individuals, groups and interests well outside the formal boundaries of an organization. Using the school district as a unit of analysis, it is generally a wide coalition of interests -- various community and professional groups, political organizations, parents' groups, unions and the like as well as employees and elected officials of the district -- that comprises the "organization" or educational institution. The precise composition of

*"Panel data" in survey research jargon.
**An example of the sort of work we have in mind is an attempt by Alice Young to identify the family of adaptive processes observed in school districts in the state of decline. Young, A., dissertation, Stanford University.

any given organizational coalition shifts over time and generally varies from issue to issue.

It is often useful to think of organizations as loosely-coupled collections of processes or patterns of behaviors each of which, internally, is coherent and stable in the short-run and which interacts less frequently with other such processes external to it in the context of particular issues and problems. For example, the degree of coordination within the budgetary decision processes is much greater (budgets have to "add up") than that between budgetary processes and curricular planning and programming processes (probably most of the short-run interaction can be summarized in the single number "resources available for new curricular developments"). Dominant clusters of behavioral interactions or processes seem an appropriate way to organize research on questions of organizational change and adaptation.

In the short run, it is useful to assert that educational organizations/coalitions possess sets of relatively simple response characteristics that relate environment inputs (e.g., aggregate financial resources or student populations) to organizational outputs in the form of action (e.g., teachers employed, classrooms utilized, schools closed or students graduated). In the long run we wish to know how and in response to what external forces these simple response characteristics change.

Some of these overlapping and loosely-coupled processes of change and adaptation are found largely within a given educational institution or organization. Some of these processes encompass the entire institution

and some refer to the interactions between institutions. Relatively distinctive research efforts may apply to these different classes of processes.

iii. Organization of this report: The pages that follow contain recommendations and guidelines for a program of organizational research relevant to the adaptiveness of educational systems. It would be a mistake to attempt to force all such research into a homogeneous mold for, realistically, those who are available to carry out the research are as heterogeneous in approach as are the possible non-academic consumers of the research. Three such approaches are presented below, distinguished from one another in that each constitutes a different method of organizing and giving shape to research on the adaptiveness of educational systems. The approach in Section II uses social theory, specifically theories of organization and innovation in social systems as the basis for organizing research. In studying change and adaptation in educational institutions one could, for example, profitably operationalize the elements of a theory of organizational decision making and use these as the structure for a research program -- e.g., doing research on such phenomena as standard operating procedures, constraint sets, search processes, and so forth, or one could use theories of organizational change or innovation to explain relative levels of adaptiveness within a set of organizations or the relative rates of diffusion among a set of potential organizational innovations. A second basis for the organization of research, found in Section III, would be to focus on a set of processes that seem fundamental to the understanding of the operation or any educational system of a particular type and which is somewhat common to the functioning of most educational

organizations of a given type. One such fundamental process, found in most school districts, for example, is the budgetary and financial resource allocation process -- the flow of revenues and similar resources through the educational system. Similarly, processes that determine personnel flows, or the systematic flows of resources and influence from external forces impinging on the local system -- Federal agencies, state government, professional organizations -- could constitute a focus for research. The third approach, found in Section IV, organizes research by its policy impact. Phenomena that are important in understanding system adaptiveness are elicited through the exploration of specific educational policies and their implications; e.g., state policies for school financing, or policies governing the conduct of collective bargaining for professional employees.

In many respects, the three ways of approaching research on organizational change and adaptation in educational systems represent different ways of grouping the same set of empirically-based research projects. In starkest terms, a theoretical orientation would organize research (Section II) around the key theoretical questions for processes of change and adaptation in public sector organizations. For example, while organization theorists have provided convincing empirical evidence for the existence of routines that "trigger" search for better solutions in response to "unsatisfactory" organizational performance, little empirical or theoretical work exists which focuses on the precise nature of these search processes in alternate environments. The orientation provided in Section II would draw attention to such theoretical deficiencies.

Similarly, the focus on fundamental and pervasive processes in school districts, for example, would emphasize a comprehensive research program aimed primarily at knowing most of what is worth knowing about the dynamic properties of particular processes such as "curriculum and program planning," "personnel selection and promotion," and "budget" common to a class of organizations. This orientation is found in Section III. We have tried to be reasonably comprehensive in coverage for both the "theory" orientation and in terms of the set of on-going processes for which we think detailed knowledge is required for knowledge of the dynamics of educational systems. Sections II and III are truly alternate ways of describing a similar, "comprehensive" set of empirical research projects. In a world of limited resources however, the "theory" and "process" frameworks would yield research programs with different emphases. In Section IV, we demonstrate, by example, for a few policy questions and areas how a program of basic research could be assembled, using "theory" and "process" frameworks simultaneously to attack particular policy problems.

iv. Audience: One important audience for the results of the research proposed here is that of potential researchers. A soundly conceived research program is more likely to generate academically recognized research. Carefully executed scholarship will, in turn, move through the natural channels of refereed academic journals and association papers. In this fashion, scholarship should cumulate over time producing more coherent theory and better crafted methodology. Additionally, good research should, by itself, attract better researchers to the domain of education organizations as a source of interesting problems. We see the attraction of superior academic research talent to the field of education as an important mission for NIE; a solid program of research is an important aspect of this recruitment.

The research program proposed here will not tell the twenty-year veteran school superintendent or college president how to run his organization. No research design, no matter how well-executed, can capture the personalities, politics, and spirit that make each education institution somewhat unique. But research which better explains the processes educational organizations have in common and highlights the systematic ways in which they differ can guide both policy makers and administrators charged with developing strategies for or responses to large-scale system changes.

II. THEORETICAL PERSPECTIVES ON ADAPTATION AND CHANGE PROCESSES IN EDUCATIONAL INSTITUTIONS

A. Theoretical Overview

A broad theoretical framework for better understanding the processes of change and adaptation in educational systems derives from theories of change and adaptation in large organizations and other systems of coordinated behavior. Given that educational outcomes are the result of a complex of particular processes (e.g., personnel selection and promotional practices, curriculum planning processes in a local school district) one can view research to be done either by focusing on the empirical details of particular organizational and system processes or by emphasizing the theoretical perspectives that seem appropriate for a class of processes. In an important sense, this section and the one that follows represent different ways of organizing the same set of research activities. This section focuses on theories about organizational and

social processes and the structures linking such processes.

1. Membership and Institutional Goals

There are several related theories in the most promising of the theories of organized behavior in non-market institutions and in educational systems. "Organizations," especially in the public sector, consist of coalitions of participants.* The degree of internal consistency in the goals and objectives of coalition members usually observed in market organizations simply does not exist in most non-market institutions; appeals to dominant goals or values do not resolve disputes. Non-market organizations can be the focus of considerable conflict among members of the coalition, given the potential diversity of members' objectives. Often coalitions form around formal institutions in an ad hoc manner in response to particular issues, press for their individually-preferred solutions, act politically in pursuit of their objectives, seek to make use of the authority and capabilities of formal parts of the organization, attend differentially to parts of the organization and to particular aspects of issues. It is useful to think of the entire, not necessarily consistent set of coalition objectives as the goal set of the formal organization.** Generally, formal parts of the organization attempt to operate within the constraint set represented by the organization's coalition. Important classes of organizational changes and adaptations occur in response to changes in the set of coalition participants.

*Cyert, R. M. and March, J. G., A Behavioral Theory of the Firm, Prentice-Hall, 196 , pp.
March, J. G., "Organization as a Political Coalition," Journal of Politics, 24 (1962), pp. 662-678.
**Simon, H. A., "On the Concept of the Organizational Goal," Administrative Science Quarterly, 9 (1964), pp. 1-22.

ii. Organized Activity and "Routine" Adaptive Behavior

While there is often conflict within an organizational coalition concerning the appropriate objectives of the organization, within constraints, most non-market organizations operate with considerable latitude. Not every issue, not every action can be or is the subject of conflict. To the extent the activities of the organization require the coordinated behavior of groups of individuals, the organization tends to develop routines, decision rules and standard operating procedures. Organizational routines permit organizations to behave in predictable, reliable ways and allow a much higher degree of internal coordination than would be possible in a situation where no routines existed or where they were unstable. In this report, organizational "processes" generally refer to stable sets of behavioral routines (e.g., budgetary decision processes).

Important types of routines or "standard operating procedures" (SOPs) exist in any given organization for translating inputs from its environment to organizational outputs in the form of action. The characteristics of such organizational processes, SOPs or decision rules, will determine, for a wide range of situations, the way in which organizations change or adapt their outputs in response to changes in the organization's environment. In the short run, at least, a school district's response to a scarcity of financial resources is strictly determined by the characteristics of pre-existing and ongoing budgetary processes of the district. Additional kinds of changes and adaptation are bound up in the characteristics of decision rules, SOPs, and organizational processes.

The long run dynamics of the more or less routine applications of a given set of organizational decision rules under various environmental conditions or the joint implications of a set of loosely-coupled but simple individual processes is seldom fully recognized. A ten year trend toward increased capitalization of educational activities in a school district may simply be the results of repeated applications of a budgetary rule that makes across-the-board cuts in expenditures for the largest administrative unit in the district whenever the total budget gets in trouble and the fact that the vulnerable unit is particularly labor intensive.

The discussion above implies a theoretical agenda for research and a rough order to the agenda:

Recommendation 1. The identification and specification of a set of "stable" organizational processes and decision rules found in a class of educational institutions.*

Recommendation 2. An investigation of the dynamic implications of the repeated applications of relatively stable routines and processes (identified in 1 above) in various kinds of decision environments.**

*Understanding of the short run adaptive characteristics of educational organizations would benefit from the kind of work done on single processes in single organizations such as Davis, O. A. and Reuter, F., "A Simulation of Municipal Zoning Decisions," Management Science, December, 1972, and Donald Gerwin's Study of budgeting in the Pittsburgh, Pennsylvania school district Budgeting Public Funds: The Decision Process in an Urban School District, University of Wisconsin Press, 1969, or a structured process found in several similar organizations such as Crecine's modeling of budgetary decision processes in three large urban governments, Governmental Problem Solving: A Computer Simulation of Municipal Budgeting, Rand McNally, 1969.

**For example in a study of the dynamic implications of stable municipal budgetary decision processes, it was demonstrated that with the same net increase in total resources over a ten-year period a stable set of decision rules yielded remarkably different allocations of those resources depending on whether the net increase was achieved with constant year to year increases or as the result of a mixed series of increases and partially-offsetting decreases (Crecine, op. cit., pp. 169-185).

Recommendation 3. For organizations consisting of sets of interconnected but individually stable processes (again, as identified in 1 above), an investigation of the dynamic implications of the set of interacting processes (within a given organization or class of similar organizations -- those with similar processes) is recommended. What happens when curricular planning activities are dealt with in the context of personnel or budgetary decisions?

Recommendation 4. Research on the dynamic implications of separate but interacting organizational processes requires research and theory on how organizational processes and routines are structured. Are the processes formally structured, interacting in routine ways and at predictable times or are they loosely coupled, interacting in unpredictable and ad hoc ways?* How do curricular planning issues become related to budgetary debates?

*The work by Cohen, M., Olsen, J. and March, J. G., "A Garbage Can Model of Organizational Choice," Administrative Science Quarterly, March, 1972, pp. 1-25, by explicitly viewing choice in institutions of higher education as being driven by loosely-coupled processes, represents precisely the kind of theoretical work needed. Graham Allison's case study of choice in the Cuban Missile Crisis (Essence of Decision, Little-Brown, 1971), although a study of a single and unique issue represents a mode of explanation which highlights the complexity of understanding outcomes generated in the unforeseen interaction of the most stable and mundane of routine organizational processes.

iii. A General Note on the Evolution of Functional Processes

It is apparent that whatever set of functional processes is currently in existence is the result of an evolution of such processes. We suspect that the "evolution" of SOPs is not as continuous a phenomena as the term implies and that the evolutionary history of a set of functional processes in a particular school district, for example, is characterized by great process stability, punctuated by occasional shifts in individual process structure following a period of problem or crisis-triggered search. Embedded in existing SOPs are search-triggering, evaluative criteria. Knowledge of the operation of families of SOPs in alternate division* environments will provide important clues concerning likely evolutionary directions. Hence, the sort of sensitivity analysis of the operation of SOPs as contained in Recommendation 3, above, is central to the questions of how any particular functional processes came into being and to the question of what directions future evolution is likely to take.

In general, an adequate investigation of functional processes and SOPs would include an "evolutionary" perspective; what kinds of SOPs are likely to evolve in which kinds of decision environments? Consider any particular functional process (e.g., resource allocation or budgeting; revenue generation). Obviously a family of such processes exists in the population of relevant educational institutions (e.g., school districts). We expect an important component of any answer to the generalizability question raised above (Research Recommendation 1) will involve the notion of a match between

*Revenue, student population, political, legal, collective bargaining, and economic environments.

decision environment and process and that the underlying theoretical explanation for expected empirical correlations between environment and process will involve evolutionary concepts. There are two ways to view the effects of evolutionary factors on the family of functional processes that exist. One approach would focus on the long-run evolutionary tendencies of a process in a particular decision environment. E.G., what resource allocation processes evolve in educational institutions embedded in an environment of declining real resources? A second approach would start with a family of processes, associated with organizations of different sizes and examine the effects of various aggregate decision environments on the size distribution of various organization -- functional process matchings.* I.e., which organizations grow, which decline and which are "selected out" in various environmental settings?

Of the two approaches, the former seems most promising for institutions with real limits on size or with a "local monopoly" -- school districts-- and later more appropriate for institutions which can "expand" or "contract" in qualitative or quantitative dimensions with fewer limits -- institutions of higher education.

An evolutionary perspective" views existing routines or processes as representing the cumulative effects of a series of shifts in the routine behavior of some prior period. It is possible to focus on the regularities in the individual changes in behavioral routines as well.

*Similar to the approach taken by Cohen, M.D. March, J.G. and Olsen, J.P., op. cit., for institutions of higher education and by Nelson , R.R. and Winter, S.G. and Schuette, H. "Technical Change in An Evolutionary Model," Institute of Public Policy Studies, University of Michigan Discussion Paper No. 45, 1973, for firms in a market environment.

iv. Changes in "Routine" Behavior: Stimuli for Innovative Solutions

When there is a gap between performance and operational goals or expectations, members of the organization are stimulated to re-examine their existing routines, and search for "better" ways of doing what they do. Once stimulated to search for new solutions or new processes, the search itself is often systematic, following established networks and dealing with established sources. To understand situations where the "adaptations and changes" represent changes in organizational processes implies a knowledge of performance-gaps and other search "triggers" and of the patterns of organizational search. Equally important as search "triggers" are the criteria that enable organizations to realize when the search is over. "Performance-gaps" and "search triggers" are best viewed as being embedded in particular decision processes; competent research on organizational routines and decision rules should encompass these issues.

While this form of organizational change, adaptation or innovation is often stimulated by "problems," internally or externally defined, processes of innovation themselves are often institutionalized and routinized within an organization; an ongoing curricular development program may serve functions identical to the R&D unit in a business firm. Such institutionalized innovation and change is part of our theoretical perspective.

v. Changes in Routine Behavior: Patterns of Search

An organization does not always discover and adopt new solutions because it is actively searching for them; often solutions in the form of salesmen are actively searching for problems. The "mating" of problems

with solutions can be a two-way street. Although understanding of organizational change and adaptation can be partially understood by examining the characteristics of organizations themselves, a fuller appreciation demands attention be focused on the nature of organizational search processes and the patterns they collectively exhibit.

Recommendation 6. Research on the patterns of diffusion of educational innovations* would constitute an important first step in uncovering stable patterns and networks of search in a population of educational organizations.

Examination of the flow of "solutions," ideas and practices between organizations generally reveals a rather definite pattern. Such patterns are most revealing of the nature of search processes in the sense that the diffusion networks revealed are often tied to professional associations and other structured information sources. The flow could also represent a flow of problems and "problem-awareness" between and among organizations.

The channels that carry "innovations" or new solutions are often such that the characteristics of the innovation itself are important factors in determining what kinds of innovations flow easily through what channels and, hence, what kinds of innovations are likely in a population of organizations.

*Similar to that conducted by Jack L. Walker on the diffusion of legislative innovations among the States reported in "The Diffusion of Innovations Among the American States," American Political Science Review, Sept. 1969, pp. 880-899.

B. Special Theoretical Problems Posed by Educational Institutions

Although there are a few exceptions, the development of the decision making approach to the study of organizations over the last three decades has not relied upon educational systems as a principal empirical base. The extension to educational systems of the methods and perspectives developed mostly in the study of other types of organizations should bring some very valuable results by reasonably straightforward application of existing concepts and methodology. Theoretical concepts like "organizational coalition," "goal modification," "standard operating procedures" and "search routines" should help to illuminate the behavior of educational systems for for researchers and for policy makers.

As the discussion in Section III demonstrates in a direct way such concepts can be invaluable aids in isolating the essential structure and details of such fundamental processes as budgeting, personnel flows, administrative reorganization, curriculum development and organizational leadership -- processes which combine to produce the educational outcomes that we consume. At the same time the discussion will indicate a number of places where the applications of the established tools will not be straightforward. New theory and new methods will probably be required to cope with the special features exhibited by educational processes, in particular with the consequences of the vagueness and diversity of goals in educational systems. The reminder of this section is devoted to the unique theoretical problems posed by educational institutions and an exploration of promising approaches to these problems. Whereas research recommendations 2-6, above, refer equally to the needs of organization theory in nearly any non-market setting, what follows in this section flows from special properties of educational institutions.

i. Problematic Goals and Objectives

It is usual to begin an analysis of an organization by describing the organization's purposes. In most organizational systems there will be many goals, supported with different intensity by different groups in the system. Techniques have been developed for identifying the goals of organizations* (Gross, Perrow, Mohr) and relatively straightforward applications of these or of improved instruments suggest useful ways to get behind the rhetoric of educational objectives to the real preferences that their outputs serve. This is necessary -- though perhaps not sufficient -- if we are to be able to make useful predictions.

Hopefully there exists a manageably small number of types of goal structures, for it is likely that organizations with quite different goal sets will respond to similar situations quite differently. For example, where parents' organizations play an essential role in the coalition (e.g. through influence on local millage and bond elections) there will probably be some areas of the curriculum which are inviolable in a budget squeeze and which may have priority claims on resources that become available for expansion. Where a greater role in financing is taken by the state government or local finance decisions are not vulnerable to parents' organization influence the situation may be quite different. The identification of the relevant populations of goal sets among the (hopefully) much larger population of educational organizations is part of the generalizability question (see Recommendation no. 1).

---

*Gross, Edward, "Universities as Organizations: A Research Approach," American Sociological Review, 33 (Aug., 1968), 518-544. Perrow, Charles, "The Analysis of Goals in Complex Organizations," American Sociological Review, 26 (Dec., 1961), 855. Mohr, Lawrence B., "The Concept of Organizational Goal," The American Political Science Review, Vol. LXVII, No. 2, (June, 1973), 470.

There will be special problems for investigators of goals in educational organizations simply as a result of the fact that coalition membership extends well beyond the formal organization and because of the essential ambiguity of the proposition on which all members will agree: "The system is to provide the best possible education." It is true that profit is by no means unambiguous as a criterion of performance in business but on the whole it is not nearly as subjective or as hard to measure a concept as "good education."

Recommendation 7. Studies of goals in educational systems will therefore have to extend existing theory and develop special techniques and theory for handling the greater vagueness, diversity, inconsistency and instability of educational goal structures. The behavior consequences of goal ambiguity and vagueness in educational systems is an especially important research question. Does the ambiguity of goals make educational systems particularly prone to fads? Does the diversity of goals make the system less flexible in the face of change?

An investigation of the network of support and obligation relationships that not only apply within the formal organization of an educational system, but extend well beyond formal boundaries into the community and to other government and private organizations promises to be a particularly productive research strategy. We refer to that wider network here as the "organizational coalition." In one way or another virtually every piece of research discussed in this report can be expected

to reflect and have implications for the organizational coalition idea and henceforth goal set(s)* of educational organizations.

Studies of the dynamics of organizational goals can also be expected to illuminate a wide range of important questions about educational systems. For example, when legal or other authoritative constraints are promulgated, how -- if at all -- will they affect the system's behavior? Who are crucial individuals or groups in the organizational coalition for particular outputs or aspects of performance of the system? (I.e. How modifiable are those outputs and how might the damage to the coalition done by altering them be compensated for, if that is necessary?) What problems are created for one subsystem by requirements deriving from the goals of another? (e.g. How must the budgetary process be altered to provide support for negotiations with teachers' unions?)

ii. Procedures and Routines

Educational systems, like all other organizations, produce the outputs that satisfy their particular coalitions through a set of somewhat routine processes: recruiting, allocating and monitoring the productivity of their human, monetary and capital resources. Those processes, in turn, can often be fruitfully thought of as groups of programs of activity that are executed once triggered by appropriate organizational conditions. These programs, or "standard operating procedures" (SOPs), are the constituent elements of major organizational processes.** Studying them will facilitate

*Simon, op. cit.

**March, J. G., and Simon, H. A., Organizations, pp.

an understanding of the principal sources of the stability in an organization's behavior. The formats of standard administrative reports, for example, do not tell us what particular decisions will be made, but they give very useful insight into what information is considered relevant and therefore into the character of the fairly small set of alternatives from which choices will repeatedly be made." Comparing the procedures used to hire new teachers in an appropriate sample of school systems will not make us able to predict who will be hired and who not, but it will give us a reasonable basis for estimating the consequences of an affirmative action rule in an affected population of schools. Research Recommendation 7, above, using educational organizations as the empirical referent, applies.

Since standard operating procedures change rather slowly it is particularly important to investigate the sources of new SOPs. Their early evolution in a given organization had a substantial impact on the current version of that process long after the original personnel have disappeared. Government practices decades or even centuries old are the conventional illustrations of extreme stability, but the standard practices of teachers and administrators often change almost as slowly.

Although standard operating procedures may originate in a number of ways, the form they take in any particular instance reflects the pressures of those elements of the organizational coalition the SOP at the time of its development. Once formed, therefore, SOPs may continue to embody values that are not subsequently as active in the organization.

Particularly when a system must contend with a very dynamic environment and its coalition is somewhat unstable, there is great potential for the triggering of "inappropriate" standard operating procedures (hiring additional personnel in spite of a budget crunch, hiring white males in spite of affirmative action requirements, reducing reading instruction in spite of low test scores).

Understanding of the characteristics of existing standard operating procedures is essential in the long run, but it often proves difficult to achieve. It is essential because although individual SOP's quite likely satisfied the organizational coalition operative during their evolution, collectively the SOP's that constitute the organization's major processes are not all guaranteed to produce maximal or even satisfactory organizational performance as defined by the current "coalition." This is so not only because goals may have changed but because the interaction of locally satisfactory procedures (a hiring schedule and a budgetary accounting routine) can be a global disaster (people hired who cannot be paid). To help educational organizations avoid such consequences we require careful studies of the changing of SOP's in a system's major processes. (Recommendations 4 and 5, above.)

The best tested remedy for rigidity in an organization's SOP repertoire is wealth. Plentiful slack resources make it much easier to induce change.* Basic research that only shows that this is also true in educational systems would not be valuable. But research that determines

---

*Cyert and March, op. cit., pp. 278-279.

the exact role of slack and other factors in the modification of SOPs (hopefully including some factors more under the organization's own control than wealth) may provide some help nonetheless to the vast majority of districts that must engineer what process changes they can with limited resources.

iii. Search Processes

"Performance" can appear unsatisfactory to elements of the organizational coalition either because of a change in goals and expectation or because of a "performance" decline. Once this has happened some part of the organization begins to perceive a problem and to search for ways to return to a satisfactory performance level.* Search, like other elements of organizational process, often exhibits the characteristics of routine that make it amenable to systematic study and, hopefully, to prediction. A good deal has been learned in recent years about search processes, both in individual problem solving and in organizational settings.** A great deal more remains to be learned, however, particularly about search processes under organizational conditions such as are frequently found in educational systems.

The extension to education systems of what has been learned about "search" for other organizations will require prior work on organizational coalitions (e.g. Recommendation 7) since they are central to both the triggering and stopping of search -- when is an "alternative" a "satisfactory" solution? It will also require careful and detailed observation of some

---

*Simon, H. A., Administrative Behavior, 2nd ed., (Macmillan, New York), 1957

**Newell and Simon, Human Problem Solving
Cyert and March, op. cit.

organizations over a period of time since search processes, like SOPs, are difficult to identify and characterize -- traditional survey research techniques and instruments such as questionnaires must give way to selective, in-depth interviewing, forming of hypotheses, checking with observed behavior, re-interviewing, etc. One of the real problems in researching mechanisms of change and adaptation in organizations is that it cannot be "mass produced" as can surveys, for example. Such work, if properly done, will yield an improved understanding of such decisions as how potential building sites are generated, how potential architects and contractors are found and how educational philosophies (e.g., "open classroom") are translated into physical structures, how new accounting and projection techniques (including computer applications) are discovered, who seeks out new curriculum material, how they do it, and under the impetus of which organizational stimuli and objective.

Many of these search processes will presumably reflect the special character or the particular educational and issue context in which they occur. Educational systems have very porous boundaries; their internal operations can be affected by the actions of any one of a very large number of interested parties. To put the matter another way, they have extensive, diverse, and reasonably fragile organizational coalitions. Search behavior is therefore an easily triggered and pervasive organizational phenomenon. At the same time, organizational goals are, as we have argued above, often vague, conflicting and subject to change. Under these conditions it can become difficult to judge whether an alternative to the given unsatisfactory state of affairs is indeed an "acceptable" solution or whether it is in anyone's

interest to so determine. Just as the startup of search may be problematic in educational organizations, so also may the stopping of search. Where goals like "profit" often permit reasonably objective evaluation, goals like "better education" may be much more difficult to assess without the help of social validation. "Social validation" may itself be a weak test. The operationalization of "the best" may be more like "the latest." The study of search processes in educational settings is therefore likely to require that we deepen our understanding of the relationship of both the triggering of search and the evaluation of the alternatives search generates to the typical social structures that form the matrix in which search takes place in educational systems. In concrete terms this may mean looking at how professional organizations and community influence an educational system's definition of a satisfactory education, or it may mean trying to understand how school officials seek to redefine the state's system for measuring the quality of educational output. Again, search-triggering performance gaps are the satisficing criteria which signals a halt to search are embedded in an organization's SOPs and routines; competent research, as indicated in Recommendations 2-5, should address the search-triggering-halting phenomena.

Finally, the study of search in educational systems may lead us to examine the ways in which "solutions" search for problems with which to be mated, as when a computer advocate or a consultant armed with the latest in budgeting technique seeks out problems that give him an opportunity to "sell" his favorite solution.

So far adaptation and change have been viewed either as an integral part of an organization's repertoire of routines or programs or as the natural result of organizational problem solving. Given an understanding of such processes for a particular educational organization sufficient for prediction and control, the generalizability of findings to other organizations becomes the key question -- Research recommendation 1 is a necessary component for a research program containing recommendations 2-5, above. Such internal processes of adaptation and change constitute a large part of the story, but not all of it. Often a more macro view reveals a structure to changes in SOPs of various kinds across a population of organizations. Some school districts adopt new programs sooner than others; some kinds of changes are easier to "sell" and implement than others. Often an examination of identifiable changes in a number of organizations reveals a macro structure not easily observed by examining behavior in organizations individually.

C. Theories of Non-Routine Organizational Change and Innovation

There is a cluster of theories and hypotheses regarding innovation in organizations that are connected by content and by virtue of the fact that they form a collection of interests common to a substantial group of social scientists. This cluster provides a number of possibilities for promising research activities on the adaptiveness of educational systems. The research directions organize themselves fairly readily into two categories in answer to the questions, "From whose perspective is the research most meaningful?" which is tightly related to another question, "What is the focus of analysis for research?" Accordingly,

consider first those directions in which the organization is the focus of analysis, including (a) general studies of the innovativeness of organizations, (b) leadership and innovation, and (c) the process of innovation in organizations. Second, consider directions in which the approach is to understand and control the natural history of new ideas and in which the focus of analysis is the innovation itself, including two lines of research, (a) diffusion patterns and (b) "diffusibility" of particular types of innovations. An integrated review of the past of all of these lines of research and thought devoted their future suggests a critical final topic, "Conceptual Issues."

i. The Organization as Focus

a. The innovativeness of organizations

In the previous section, the search process was discussed, along with the importance of performance gaps as a triggering mechanism. Considering any specific instance of potential innovation in an organization, the phenomenon can be viewed as the existence of a performance gap of some kind followed by search that may result in the adoption of a new pattern of behavior. The performance-gap model* is one theoretical approach to the understanding of organizational innovation. Unfortunately, it has received scant theoretical attention. There are other models, including motivation-resources theory,** environment theory,*** and initiation-implementation theory,**** that are promising and that have received

similarly scant attention in empirical research. Studies that would test, with appropriate designs, the theories of innovation that have already been formulated are to be encouraged.

Most past research on organizational innovation has been theoretical primarily in the sense of generating hypotheses about the correlates of organizational innovativeness. They have proceeded mainly by reviewing the zero-order correlations between innovativeness and each variable in some large and undifferentiated set. More research of this type is not to be encouraged in the field of education since it tends not to be cumulative. Rather, investigators should be encouraged to specify, at least in the analysis phase if not a priori, the nature of the causal relationships among the explanatory variables and how they combine to produce variation in innovativeness. Path diagrams are excellent vehicles for theoretical specification of this sort. They require a theoretical statement and display it prominently for the review and critique of other interested scholars.

In general, research in this area has focused on the adoption of innovative ideas considered by some source external to the local system to be both generally advantageous and widely applicable. Thus our ideas of characteristics associated with innovativeness are based almost entirely on the readiness of organizations to take on new programs or techniques that are specified before the sample communities are observed and that may or may not represent solutions to problems felt keenly (or at all) by given educational systems. This thrust is important to those with a statewide or national perspective and is readily justified in the name of

the continuing modernization of the national educational plant and program. It does not, however necessarily get at the heart of what is meant conceptually by innovativeness or adaptiveness, which connotes the readiness to act flexibly in response to internally perceived problems, or shortcomings in performance. Organizations that are highly innovative in this latter sense may well have been scored as noninnovative in previous research because they have not fallen in with the popular national trends.

What is needed from this point of view is a dependent variable built around a specification of problems for each system studied, regardless of how applicable they may be to other organizations performing the same sort of function, and a specification of the degree of flexibility displayed by the organizational reaction to the problems, regardless of whether a solution, if adopted, is transferable to other organizations. More specifically, the dependent variable, innovativeness, must be operationalized as innovative responses to a sample of problems that have been perceived in each organization studied (teaching problems, disciplinary, financial, personnel, governance, etc.).

The probability is high that organizational characteristics associated with innovativeness so measured are quite different from those associated with innovativeness in more traditional research. Size and wealth are no doubt less important. Attributes of leaders such as "cosmopolitaness" are less important. Structural characteristics such as differentiation (Lawrence and Lorsch) are perhaps more important.

Recommendation 8. Research on the determinants of the relative "innovativeness" of a variety of educational organizations, based on locally perceived problems, is recommended.

Since a new and difficult measure of innovativeness is needed and since new predictor sets must be explored and developed, small-scale pilot research is strongly advised as a preliminary to extensive investigations.

b. Leadership and Innovation

How do the characteristics and behaviors of leaders fit in with characteristics of the organization and its environment in determining both the outcome of specific opportunities to innovate and the overall innovativeness of an organization? Cohen and March[1] take the Tolstoyan view, based on research in universities, that leaders have very little capacity to affect the system, at least in one kind of organization (the "organized anarchy," in which the goal structure is a large hodge-podge of vague and inconsistent designs). In the hypotheses and findings of many other studies, however, the characteristics of leadership figure prominently. These include health officers[2] (Mytinger, Mohr, Becker), school superintendents[3] (Carlson), company presidents[4] (Mansfield), welfare directors[5] (Derthick), and the inner elite of various health and welfare organizations[6] (Hage and Dewar), and others. Further, Selznick[7] has persuasively if not

[1] Cohen, K. and March, J. G., Leadership and Ambiguity: The American College Presidency (McGraw-Hill, New York), 1973.

empirically argued a view which implies that influencing decisions on innovation, to the extent that these are "critical decisions," is a primary function of organizational leadership. Are these various views and findings contradictory? How potent is the role of leadership in innovation when the context is not an organized anarchy? Does the chief executive have an important positive role or primarily a negative role (veto power, innovation bottleneck)? Does the executive have significant influence at the implementation stage or just at the initiation stage?

Recommendation 9. Research viewing the leadership role in facilitating innovation in educational organizations as being partially dependent on the characterization of the local organization (e.g., system structure, problems, resources) is recommended.

The challenge is to produce a model in which leader characteristics and behaviors are not just another undifferentiated predictor subset but are connected in specified ways with the other predictors of innovation. For example, the following basis for hypotheses is consistent with the work mentioned above: The greater the clarity and consistency of the organizational goal structure, the greater is negative (bottleneck) influence of leadership on innovativeness and the greater is the positive influence of leadership on innovation in the initiation stage.

c. The Process of Innovation

Innovation is a process taking place over time and it frequently occurs that decisions to adopt a new idea, requiring change in some configuration of organizational behaviors, run into difficulty at the stage

of implementation. Two types of research are suggested to develop a better understanding of the fate of such decisions in educational systems.

Recommendation 10. A set of studies with comparable research designs focusing on the implementation phase of innovation is called for. One is a small series of connected case studies designed to develop a theory of innovation at the implementation stage. Because the key implementation problem involves changing ongoing processes it follows that implementation case studies should involve the set of organizations investigated under Recommendation 2, above. The second is multi-organizational research on the correlates of organizational innovativeness, where the dependent variable is a composite of new techniques or programs comprising only those that have successfully passed through the initiation stage of the innovation process.

These kinds of studies would substantially enhance our understanding of innovation as an organizational as opposed to an individual phenomenon and is particularly important in education, where the implementation phase may involve several community forces beyond the administrative structure of the school district itself.

ii. The Diffusion of Innovations

A second broad area of research has as its focus specific innovations and the rate and extent of the spread of each throughout a population

of potential adopters. Research of this type has been recommended, above (see Recommendation 6); some guidance for these research activities follows. Most of the research has been directed toward individuals as the potential adopters. However, there is good reason to hypothesize, at least, and some supportive evidence for the proposition, that the findings are directly transferable to organizations.

a. Diffusion Patterns

Once a search process is triggered, the pattern of search is frequently responsive to linkages between organizations. In the educational context, there are important linkages of communication and influence both among school districts and between the school district and external organizations, such as the state and Federal governments, professional associations, and universities.

Diffusion theory has been developed in some detail, but many facets remain to be tested, with both theoretical and applied profit, in the context of educational systems. It would be well to document, for example, whether the characteristics of organizations that are early adopters of educational innovations, late adopters, laggards, etc., are as predicted in traditional diffusion theory. The characteristics to be tested involve both positions in a social system of advice and information and descriptors such as wealth and general receptivity to change. Other facets of the theory have received little or no attention in research so far. Under what conditions, for example, does communication from an adopter to one who has not yet adopted lead to trial of the innovations? From the standpoint of organizations, there is another question that has barely been

touched. Organizations, as apart from individual organizational members, communicate with each other only in very special ways -- reports, policy announcements, price changes, etc. Is it this kind of communication that diffuses an innovation, or is it communication among individual people, just as was the case with hybrid seed corn? If so, which people? How would we characterize their organizational roles so that diffusion research can identify them? In transferring the classical diffusion model from systems of individuals to systems of organizations, this question has as yet not been tackled, but it is a key question for understanding and affecting the process.

Another application or replication of diffusion research is of great interest in the education context. Does the diffusion of innovations among some of the poorer districts, especially those serving minority groups, corroborate existing theory or are different forces at work? These districts may not have central positions in diffusion networks but may be highly energetic and flexible. Moreover, they may perceive themselves as having special problems. Much of the literature on diffusion of innovation has centered around innovations that originate in the world of research. These innovations are written up in professional journals, read by "opinion leaders" among practitioners, and thence spread by personal contact to less bookish colleagues. This model leaves open the question of how innovative ideas that bypass the research-oriented professional circuit altogether are transmitted, and offers little hope to the managers of poor, relatively poorly staffed districts that are last on the chain of communication.

This observation suggests a focus of research on innovation in smaller, poorer districts, with special emphasis on diffusion of innovations that arise among the practitioners themselves but are not picked up in the professional journals.

b. "Diffusability" of an Innovation

"The Diffusion of Innovations" comprehends a further research tradition with substantial potential value for education. It addresses the question, "What is it about some innovations that makes them spread more rapidly than others?" .

Recommendation 11. Research on the determinants of the diffusability of educational innovations is called for.

In truth, existing research has produced some good leads but no very complete answers to this question, so that further study in the educational context would fill an important theoretical hole as well as having significant implications for policy implementation at the Federal and state levels. The answers would very probably be more complete if future research considered the "fad value" of innovations in addition to the characteristics traditionally included. If for no other reason than the ambiguity of goals in educational systems and the need for many innovations to be acceptable to a wide and diverse constituency, it is likely there will be strong linkages between this research activity and Recommendation 7, above.

iii. Conceptual Issues

In many respects, the study of innovation in organizations suffers from a serious lack of conceptual clarity. The issues are so numerous, so pervasive, and so interrelated that theoretical progress is severely threatened and with it, the ability to apply the results of research with confidence to applied problems.

Recommendation 12. It is almost imperative that a paper or coordinated series of papers be written on conceptual issues in the study of innovation.

Such a paper should serve as a guide to individual investigators and, in larger perspective, would conserve resources in the attainment of the goals of the cumulative body of research. Some of the topics that appear to merit treatment are listed below. Almost all have to do with conceptualizations of the core concept, innovation. The task of the paper on conceptual issues goes beyond the mere drawing of attention to those issues. It would cover their implications of these issues for research and theory -- the extent to which different notions of innovation must be used in connection with a focus on different determinants of innovativeness or diffusibility, the extent to which different determinants must be used depending on the conceptualization of innovation, and the consequences of departures from conceptually sound procedure. The list includes:

1. Means innovation vs. ends innovation, or technological vs. program. Sometimes more finely categorized as

product, production-process, structural, people-development, and policy (Knight), or product, component, process (Myers-Marquis).

2. "Major" innovation vs. "minor" innovation (Wilson). Or routine vs. radical (Knight), or variation vs. reorientation (Normann).
3. The implications of the possible nonadvantageousness of specific potential innovations for their inclusion in operationalizations of the concept.
4. Time of adoption vs. number of innovations adopted.
5. The inclusion of characteristics of individuals among a set of independent variables measured at the organizational level.
6. Individual-level vs. system-level adoption, including the relevance of theory and findings on individual innovation (the agricultural and medical traditions) to organizational innovation.
7. The distinction between innovations as a unit of analysis and organizations as a unit of analysis.
8. The a priori determination of those innovations to be included in the operationalization of innovativeness, as opposed to the inclusion of all innovations of each organization.
9. Innovativeness in general vs. the adoption of a particular innovation or type of innovation.

10. The relation of stages in the process as dependent variables to the wholistic or collective concept of innovation as a dependent variable.

D. Research Priorities

Based on key theoretical issues involved in the study of organizational decision making, change and adaptation in the particular context of educational institutions, twelve research topics have been recommended for NIE support. As is apparent from the discussion, there is a partial structure and ordering to the recommendations implied by theory. For example, before one can explore the dynamic properties of a set of decision routines or standard operating procedures (SOPs) in a variety of environments (Recommendation 3, above), it is first necessary to specify the SOPs (Recommendation 2, above). Figure 1, below, represents a partial sequence to the recommended research areas (1-12) implied by theory and, as such, strongly suggests priorities for NIE in terms of research organized around important theoretical questions in organization theory.

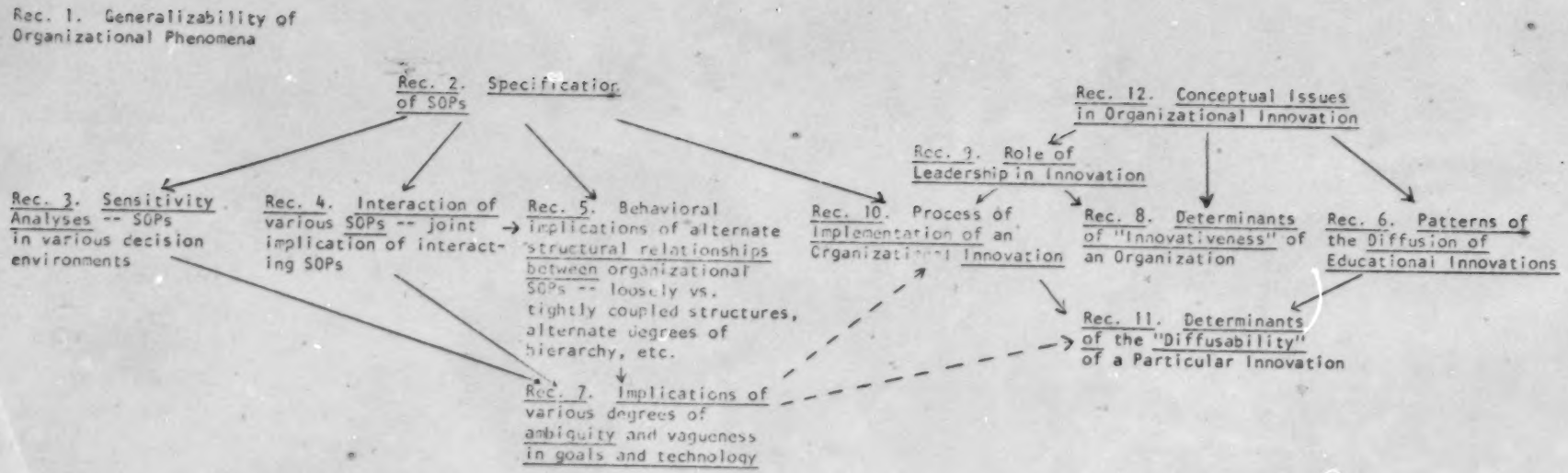
Rec. 1. Generalizability of Organizational Phenomena
Rec. 2. Specification of SOPs
Rec. 12. Conceptual Issues in Organizational Innovation
Rec. 3. Role of Leadership in Innovation
Rec. 3. Sensitivity Analyses -- SOPs in various decision environments
Rec. 4. Interaction of various SOPs -- joint implication of interacting SOPs
Rec. 5. Behavioral implications of alternate structural relationships between organizational SOPs -- loosely vs. tightly coupled structures, alternate degrees of hierarchy, etc.
Rec. 10. Process of Implementation of an Organizational Innovation
Rec. 8. Determinants of "Innovativeness" of an Organization
Rec. 6. Patterns of the Diffusion of Educational Innovations
Rec. 11. Determinants of the "Diffusability" of a Particular Innovation
Rec. 7. Implications of various degrees of ambiguity and vagueness in goals and technology

Figure 1

Research Agenda: Prominent Theoretical Questions
Organization Decision Making

The recommended research program focuses on institutional processes and how they change -- processes that translate the inputs of educational organizations to outputs in some systematic fashion. In itself, the research agenda specified in Figure I and presented in this Section, provides a partial guide for research activity. In Section III, below, particular processes that are prominent in educational organizations and, hence, are candidates for research are specified. I.e., which processes should be studied? Most of the specific empirical phenomena to which the Figure I Research Agenda should be applied are identified in Section III. In the sense of restricting potential areas of research to a few prominent processes, the list of substantive areas found in Section III is itself a statement of priorities.

Section IV, by illustration, discusses how priorities determined on organization-theoretic grounds (Figure I), combined with the Section III empirical priorities can be further refined on the basis of particular policy questions and orientations. Not all theoretical questions are important, not all processes found in educational institutions are worth studying and, particular changes and adaptations with respect to some outcomes are more important than others, empirical and theoretical knowledge of only a subset of such processes are important. Which processes translate inputs into educational outputs and which policy levers and inputs are under the influence of the policy making body or policy maker? What would research priorities be given a particular policy orientation and given a background of empirical knowledge concerning prominent processes (Section III) and research priorities in terms of theoretical questions (Section II)?

III. RESEARCH ON PARTICULAR ORGANIZATION AND EDUCATIONAL SYSTEM PROCESSES

A. Introduction

Educational organizations are characterized by a variety of functional processes that, to a large extent, themselves determine organizational behavior and performance.

Functional processes, such as budgeting, capital planning, personnel recruitment, labor negotiation and curricular planning, are part of the division of labor in a particular educational institution and represent functions common to most such institutions. In addition there are some institution-wide processes, involving factors such as coalition and goal formation (school board politics, teachers unions, etc.) governance and administrative structure and leadership style, which constitute important parameters for component functional processes. Finally, both functional and institution-wide processes are generally subject to influence by organizations commonly viewed as being outside the boundaries of any single educational organization (e.g., state department of education, adjacent school districts, schools of education). The nature of the influences of external organizations depends critically on the linkages between the educational system and external "influencing" organizations. Change and adaptation in any given educational organization almost always is accomplished through existing functional processes which, in turn, are themselves affected by institution-wide and inter-institutional processes. Knowledge of the structure and characteristics of these three classes of processes is required for understanding, prediction or control of the form and substance of changes and adaptation in educational institutions.

This section consists of a series of substantive research areas corresponding to particular functional processes -- system-wide processes and processes linking institutions that appear to be critical to an understanding of the ways in which educational organizations adapt to their environments. The substantive research topics outlined below are intended to flesh out and provide particular empirical examples for the theoretical research agenda outlined in Section II, above (see Figure 1). Substantive research areas outlined in this section are grouped into the three broad categories (functional, system-wide and institution-linking) discussed above.

Although the research recommendations of Section II represent the general list of research questions which the substantive, empirical research topics outlined in this section would address, moving from the general to the specific is not always a trivial process. In addition, the relative importance of the particular items in the "theoretical" research agenda (Figure 1) changes from substantive area to substantive area. In general, research focusing on standard operating procedures (Recommendations 2-5, 7) are likely to be relatively more important for substantive research on intra-institution, functional processes whereas the innovation/diffusion research questions (Recommendations 6, 8-12) are relatively more important for substantive research on institution-linking processes. Descriptions of substantive research on specific organizational and educational system processes in Section III is intended to bring out the differences in importance of the general and more comprehensive list of theoretical questions developed above (Figure 1).

B. Intra-institutional, Functional Processes

Functional processes that seem both important as determinants of organizational change and adaptation and common to a wide variety of elementary and secondary educational institutions are resource allocation and budgetary processes, curricular development and planning processes, personnel flows within an educational system (internal labor markets within a school district/promotion-l policies/teacher assignments). Undoubtedly there are others, such as teacher union bargaining and capital planning, but these seem the most important.

i. Resource Allocation (Budgetary) and Revenue Generation Allocational Processes

The aggregate availability of resources and the processes employed to allocate and budget revenues can significantly affect the kind and quality of educational services provided by an educational organization. Resources may come from a variety of sources and may be allocated in any number of ways. Changes in the total quantity of resources, their sources, and allocational constraints have profound implications for the operations of the many parts of an educational organization. The ways in which budgetary processes translate such changes into reallocations of resources and activities is not well understood and, given its role in defining the context for other educational activities, deserves considerable study.

There is a considerable literature describing the resource base and how budgeting should be practiced by school districts. What is needed are studies of how school districts' actually budget and allocate resources and how they behave when confronted with major shifts

in the level and composition of resources available to them, or how resources are reallocated among items in response to an externally imposed expenditure shift for a single item. Much of the change in district activities resulting from changes in aggregate resource levels will be determined by the dynamic properties of ongoing and stable resource allocation processes. Work similar to Gerwin's (1969) detailing the properties of such processes is required (Research Recommendation 2, specifying SOPs). For example, ongoing budgetary processes routinely translate the effects of an expansion or decline in tax revenues -- whether due to a change in the property tax base caused by regional economic variables or by a conscious change in tax rates -- into shifts in allocations to a host of school functions and activities such as:

a. elementary vs. secondary schools

b. college preparatory, general, vocational and special educational programs

c. salary increases vs. staff expansion

d. teaching vs. support and administrative functions

e. extra curricular (music, sports) vs. curricular programs

f. between academic departments (math, history, etc.).

It is no accident that in periods of severe decline in real resources, threats to eliminate interscholastic athletic programs emerge before proposals to expand class sizes or drop administrative or teaching personnel. There is a structure to those processes which routinely makes "planned expenditures" on a variety of items consistent with "projected revenues" and there appears to be a regularity across districts.

The stability of allocational routines has been observed and modeled in several governmental settings -- school districts[1], large municipal governments[2], state governments [3], federal domestic programs[4] and the U.S. Department of Defense[5].

Gerwin's work suggests school districts are no exception. Whether one wishes to know the allocational effects of long run declines in resources, assess the likely import of new state financing formulas, incorporate implementation considerations in the design of a new financial planning process, or wishes to introduce long range planning considerations into the process or wishes to assess the impact of a shift in teachers' salaries on the rest of the system, knowledge of the characteristics of existing resource allocation routines is required.

Revenues Generation

A more macro characteristic of resource allocation processes in school districts relates to revenue-raising/taxation issues. Obviously, one response to scarcity or plenty is to raise or lower the amounts of total revenues obtained through taxation. Although such actions are the subject of considerable strategic and political planning on the part of local school boards, there may very well be some underlying factors that constrain or guide such planning and outcomes. What is the likely response...

1. Gerwin, D., Budgeting Public Funds: The Decision Process in an Urban School District, University of Wisconsin Press, 1969.

2. Crecine, J.P., Governmental Problem Solving: A Computer Simulation of Municipal Budgeting, Rand McNally, 1969.

3. Anton, T.J., The Politics of State Expenditure in Illinois, University of Illinois Press, 1966.

4. Davis, O.A., Dempster, M.A.H. and Wildavsky, A., "A Theory of the Budgetary Process," American Political Science Review, 60 (1969) 529-547.

5. Crecine, J.P. and Fischer, G., "On Resource Allocation Processes in the U.S. Department of Defense," in Cotter, C. (ed.) Political Science Annual, Volume 4 (1973), Bobbs-Merrill.

What is the likely response of school districts to changes in the costs of providing services? More specifically, how have school districts responded to the rapid rise in teacher salaries of the past decade? Have districts been able to raise taxes to cover the increased cost or has an expanding tax base kept revenues near necessary levels? Have there been any attempts to change the mix of inputs in producing education so as to make them less labor intensive? If school districts have been able to pass the additional costs on to the public what political factors have made this possible?

Other research activities similarly might analyze school district response to changes in the local property tax rate. The local property tax price can change for a number of reasons. Changes in the state school aid formulas may increase or decrease reliance on the local property tax base. It is important to find out whether a reduction in state support, for instance, leads to an increase in local taxes, or a reduction in expenditures. In what kinds of districts would each of these responses occur; under what conditions? Shifts in the level of other local government taxes may also affect the public attitude toward the education portion of their local tax bill. The consequences of this phenomenon, frequently called the "municipal overburden" problem needs further investigation.

A more general research problem is to find out under what conditions a district will seek to replace revenues when they are reduced for some reason. Under what conditions will districts seek to raise taxes? Are there other strategies available to adjust to a change in revenues or other needed resources?

Clearly, research on allocational routines would view the organization in a narrower, formal-membership sense than would research on revenue generation processes. The composition of the relevant organizational coalition

for revenue generation processes would include, in addition to the local school board, teachers and administration, important political groups and parties and other units of government sharing the local tax base. Whether "extra-organizational" coalition members are an integral part of revenue-generation processes or enter calculations as a constraint to be satisfied is partly an empirical question and partly a matter of taste.* It also seems clear that although SOPs clearly exist in revenue generating processes (e.g., "avoid planning school millage proposals on the same ballot with other millage proposals," "avoid high turnout elections," etc.) they are less structured than the allocational SOPs, and will require a somewhat different methodological approach.

Finally, in researching resource allocation and revenue generation processes in school districts, important research questions would focus on the evolutionary processes and the generalizability of findings. What are the dynamic properties of existing procedures in various revenue, student population, collective bargaining and political environments? How have they changed over the past few decades with what allocative effects? What triggers search for new resource allocation and revenue-generation procedures? What process changes have been most successful for responding to different kinds of environmental events? For example, how have attempts to implement PPB (Planning, Programming and Budgeting) systems satisfied public demands for accountability? At what cost? What changes have proved most successful? In what ways do budget processes differ according to the kind of state financing system, the size of school districts, the racial composition of districts, the wealth of districts, collective bargaining laws, etc.?

*See Simon, H. A., "On the Concept of the Organizational Goal," Administrative Science Quarterly, 9 (1964), pp. 1-22.

ii. Curricular Planning Processes

In many respects curricular planning -- what courses are offered, with what substantive content, at what level, using which textbook and teaching materials and employing which teaching style or "technology" -- comes closest to the issue of what educational services are actually delivered and how. Policies about content and methods of teaching are at the core of what is the most important set of educational outputs, the education of students.

Curriculum plans and policies are determined at many levels in this country. State legislation specifies the inclusion of some subjects in every school's curriculum. In some States the State Board of Education chooses textbooks to be used throughout the State. State-wide examinations (e.g., New York State Regents examinations), reading and mental ability tests shape educational services delivered in a State in both formal -- assigning students to curricular tracks based on scores -- and important informal -- teaching to test -- ways. Local and state boards of education periodically take positions on, endorse or commission particular course offerings and sometimes specify content. Schools of education establish "policy" in important ways through their roles as regional and national trend setters and through the specific training they provide new teachers and administrators. Finally, the coalition of local interests comprising an individual school district have varying degrees of influence in determining courses of study (e.g., Afro-American studies), textbook adoptions, time allotments of teachers and the like. The degree of autonomy provided teachers in organizing their activities varies a great deal. In some instances teachers are assigned particular subjects, given a detailed course outline

to follow are directed to teach in a prescribed manner (e.g., team-teaching in an "open classroom" format) and generally have little individual discretion. Elsewhere there is considerable autonomy in teacher behavior. Teachers unions are an increasingly important force in curricular policy settings.

The implication, is that great care should be exercised in treating curricular planning and policy making as an intra institutional process. It is clear, for example, that the population of curricular planning processes in the nation's more than 19,000 school districts should be stratified by State, if there is to be any hope of generalizing about these processes. Kirst and Walker outline the complexities and pitfalls in studying curricular planning processes:

> "A mapping of the leverage points for curriculum policy-making in local schools would be exceedingly complex. It would involve three levels of government, and numerous private organizations including foundations, accrediting associations, national testing agencies, textbook-software companies), and interest groups (such as the NAACP or the John Birch Society). Moreover, there would be a configuration of leverage points within a particular local school system including teachers, department heads; the assistant superintendent for instruction, the superintendent, and the school board. Cutting across all levels of government would be the pervasive influence of various celebrities, commentors, interest groups, and the journalists who use the mass media to disseminate their views on curriculum."
>
> "We distinguish three ways in which national or regional agencies affect state and local curriculum policy-making: by establishing minimum standards, by generating curricular alternatives, and by demanding curriculum change. We treat these three types of effect on policy-making separately, even though some groups affect policy-making in more than one of these ways."*

*Kirst, Michael W. and Walker, D. V., "An Analysis of Curriculum Policy-making," Review of Educational Research, December, 1971), pp. 479-510.

In terms of intra-institutional processes, curricular planning is considerably constrained by a variety of private accrediting and testing agencies, in the case of secondary school college preparatory courses, by college entrance requirements and by State Departments and Boards of Education. Even though most curricular decisions are made at the local level, outside agencies and groups provide the alternatives from which they choose and the same non-local groups are likely to comprise important sources of demands for curricular change. Kirst and Walker contend that the local community's influence on curriculum is limited to the very few episodal, curricular issues like race relations, sex education and athletics, that what influence exists is exercised through negative action (tax proposals defeats, school board members recall, disruption) and that there is a widespread belief that laymen should leave curricular matters to the "professionals."*

With the important caveat that non-local factors constrain local action and provide the menu of curricular alternatives from which individual school districts choose and implement, the forms of research on intra-institutional curricular planning processes rests at the level below the Superintendent in most districts. At the planning and policy stage, what routines exist are likely to be embodied in either the Assistant Superintendents for Instruction and/or academic Department Chairman, working in connection with teachers' committees.

---

*Kirst and Walker, op. cit., pp. 499-500.

> "These committees of curriculum administrators and teachers employ a decision procedure of disjointed incrementalism and mutual adjustment. In effect, many curriculum policies are made on a piece-meal basis -- academic department by department -- and they may not be reviewed or changed for many years through any formal decision by the superintendent or anyone else. We know very little about this bureaucratic bargaining and conflict.
>
> We are more certain that the influence of the principal seems small....In effect, the principal is too bogged down in day-to-day management to be more than a middle man between the teacher and the central office for the implementation of curriculum. This is despite the stress the formal job description of the principal puts on curriculum leadership."*

An important, and generally neglected, part of the planning and policy making process is the implementation phase. A decision may be made at the district level to adopt an "open classroom" method of teaching or a particular new text for a course. Teachers and student-teacher pairings must implement the policy and, in that role, have their own abilities, orientations and backgrounds which may make the plan or policy in operation an entity quite different from the original. The implementation phase (Recommendation 10, above) is a vital part of the research agenda.

It is expected that intra-institutional research on curricular planning processes, using the agenda recommended in Section II (see Figure 1) would place relatively more emphasis on the innovative tendencies of organizations (i.e., Research Recommendations 8, 10 and 7) and relatively less on the specification of SOPs in comparison with the resource allocation and revenue generation areas and would devote relatively more

*Kirst and Walker, op. cit., p. 502.

attention to the linkages between educational institutions and other, non-local factors.

These general questions should lead to the generation of several specific research questions. What are the formal and informal organization mechanisms for taking in and processing community values-statements or concerns? How do these mechanisms differ for different kinds of school systems? At what level of the hierarchy do these mechanisms operate? Does the level vary for different kinds of concerns? The literature on professionalism (Blau and Scott, for example) suggests norms of professionalization would lead teachers to resist community efforts at change.)

One model of organization change behavior suggests that change occurs when solutions find problems to solve. An examination of the characteristics of this phenomenon are treated in the Cohen, March and Olsen work.* A second, more conventional model of organization change behavior suggests that change occurs when problem awareness exceeds a certain minimum level.** In a system in which performance criteria are ambiguous, the characteristics of system receptivity to organization change may differ across districts and should be explored. (Recommendation 7) What is the role of evaluation information, e.g., standardized text scores, in providing impetus for change? What is the role of personnel expectation? (For example, are teachers in a system whose student body is changing rapidly more or less likely to support curricular changes than teachers in a system with a stable student body?)

*Cohen, March and Olsen, op. cit.

**Cyert and March, op. cit

Once a curricular or instructional change has been officially adopted at the district level, there still remains the issues of adoption at the school or classroom level. The organization processes and SOPs related to the bridge between adoption and implementation, which may well affect the strength and extensiveness of adoption, should be examined across a variety of districts. What are the school supply SOPs? How are textbooks ordered? What are the teacher contract provisions for after-school, in-service training time? Are there any teacher/school/district incentives for adopting particular changes? Do differences in those incentives, for example, money saved, community good will, increased reading scores, lead to different rates of implementation?

iii. Personnel Flows and Internal Labor Markets Within Educational Organizations

Teachers and administrators enter educational organizations, have a sequence of jobs (careers), and leave. There is generally a pattern to such personnel flows, and the rates of flows within a personnel structure are often affected in critical ways by factors exogenous to the organization. For example, a growing, expanding organization usually generates a considerably greater number of vacancies and promotional opportunities than static or declining organizations. Promotions, retirements and expansions all create vacancies which in turn create other promotional possibilities, etc. The effect of a single opening is multiplied by the chain of vacancies it creates. To the extent that the characteristics (background, age and ambitions) of personnel who occupy particular roles in educational organizations influence outcomes, personnel flows and the career incentives associated with such flows become important.

From either the standpoint of a teacher's career or personnel processes within a given educational organization, three general sets of phenomena are worthy of examination: personnel selection at point of entry into the system; the structure of incentives, promotional opportunities and advancement criteria; and processes of separation from the system. A reasonable amount of research has been done recently on personnel processes for elementary and secondary school teachers (see Gerwin, D., (ed.) The Employment of Teachers for an excellent survey and evaluation), but little

attention has been paid to such processes as they affect school administrators. Much of the recent work has a normative focus, originating from the Coleman report (Equality of Educational Opportunity) which suggested that if one controlled for parents' income and education and for peer-group effects, teacher characteristics had little, if any, relationship to educational outputs for students.* Two points should be made. First, it is fundamentally important that the relationship between teacher/administrator characteristics and educational outcomes be established so that knowledge about personnel flows and incentives, which translate into knowledge of the characteristics of personnel in various roles, can in turn be translated into useful insights on those particular factors which affect students and student learning.** Second, the behavioral properties of personnel processes affect important non-student outcomes as well and need to be better understood if one is to comprehend the long run implications of such factors as seniority and teacher assignment rules in teachers' union negotiation packages, declining financial resources and student enrollments, and oversupplies of teachers.

---

*See also Hanushek, Eric, "The Production of Education, Teacher Quality and Efficiency," Do Teachers Make a Difference?, U.S. Office of Education Report, OE-58042.

**See Crecine, J. P., "The Politics of Education: Some Thoughts on Research Directions," in Kirst, M., State School and Politics, Heath Publishing, 1972, for an extended presentation of this point.

Existing research on personnel flows and internal labor markets for teachers is broken down into the more traditional categories of teacher selection, teacher evaluation, compensation, educational administration (staff conflict management, decision making styles and structures, leadership) especially as it affects motivation, collective bargaining in public education and separation.* An examination of these more traditional topics from the standpoint of organizational decision making and routines outlined in Section II (Research Recommendations 2 and 3, above) not only should yield new insights, but should enable one to examine the more important interfaces between personnel processes and other processes (e.g., budgetary processes and compensation and collective bargaining processes or collective bargaining vis-a-vis teacher assignment). (Research Recommendation 4, above.) One can envision a program of research on personnel processes which emphasizes the flow of teachers and administrators through a school district in much the same way as Cohen and March analyze the flow of people through a student-professor-department head-dean-provost-president filtered hierarchy in higher education institutions** (e.g., teacher selection, evaluation and separation). One can envision another program of research which would focus on the incentives impinging on personnel at various stages of teacher/administrator careers, with expectations about future career

*Gerwin, D., op. cit., pp. 2-5, 94-97, 240-243, 336-339.

**Cohen, Michael D. and March, James G., Leadership and Ambiguity: The American College Presidency, op. cit.

possibilities constituting one important set of incentives (e.g., teacher evaluation, compensation, educational administration). And one could imagine a program of research focusing on the determinants of key constraints and parameters of personnel flows and incentives (e.g., collective bargaining, state legislative constraints, financial and student-population factors) as they effect vacancy-chain phenomena and the rate of flow of people through institutions. If the research on personnel flows and internal labor markets is to be done in a sequential fashion, it should be done in the order of "personnel flows," "incentives," then "parameters and constraints."

a. Flow of Teachers and Administrators Through a School District

Most research on teacher selection to date has focused on the relationship of selection criteria to various measures of teaching success and performance and has been conducted from the point of view that one needs only to find a better set of criteria upon which to base selection and implementation will take care of itself.* Research analyzing the decision processes and routines surrounding personnel selection would not only focus on patterns of search and selection, but would also examine the effects of such routines under various supply conditions. How does the set of personnel selection routines which have evolved in an era when the principal problem was one of recruiting an adequate

*See, for example:
Bolton, Dale, "The Effect of Various Information Formats on Teacher Selection Decisions," American Educational Research Journal, May, 1969, pp. 320-347.
Hanushek, op. cit.

supply of teachers operate in an environment containing an oversupply of teachers, declining real resources and teachers' unions concerned about job security for existing teachers? (Research Recommendation 3, above). More detailed knowledge of existing selection processes would derive from examination of ongoing operations which, in turn, would provide crucial information on points of leverage in existing operations -- information necessary for successful implementation of reforms.

b. Incentives

In examining the reasons why teachers with certain distributions of ages, educational backgrounds and competencies are found at various points in the educational system, it becomes clear that not only does one need to know about how school districts select from the various pools of candidates (partially represented by categories of schools of education) but how the various pools came to be. What is the student decision and school selection process at the time undergraduates choose an education major? What information influences the decision? How does the education major compete with other possible majors? The selection criteria applied by school districts is applied to a pool of candidates already screened by schools of education (predominantly). What are the characteristics of this prior self-selection and screening process? To some extent, at least, the motivational and perceptual phenomena observed later in a teacher's or administrator's career have their origins in the initial career choice (college major choice) and screening.

The decision to enter the teaching profession and into a particular employment contract (accept employment in a given school district) is partly self-selection on the part of potential teachers and partly recruitment and screening on the part of schools of education and school districts at the time of initial employment. During periods of an undersupply of teachers we would expect self-selection criteria to dominate the process. In periods of "over supply" we would expect school district selection and screening processes to provide the most important explanation of outcomes. (Research Recommendation #3). Once in the system teachers either progress through it in reasonably well-defined stages, with some going into administrative positions, age and eventually retire or decide to leave the system. The rates of flow through the system are determined primarily by vacancies. Vacancies are created by retirements, expansion or contraction in the size of the system and by teachers voluntarily leaving the system.

The decision to leave an employment contract, in principle, involves factors very similar to those involved in the decision to enter it in the first place. Consequently, research on the self-selection processes on the decisions to enter and leave the employment contract should be closely linked.*

On the organizational side, the way in which school districts react to declining resources and enrollments (cutting support personnel,

*Charters, W. W., "Some 'Obvious" Facts About the Teaching Career," Educ. Admin. Quarterly, Spring, 1967. March and Simon, Organizations, Wiley, 1958.

teachers in various categories, etc.), interacting with numbers of personnel at various levels in the hierarchy of jobs in a given district can be expected to have important long-run impacts on both the distributions of competencies, ages, etc. of teachers at particular levels but also on the "decision to leave" at all levels.

In an important sense, the decision to move to the next level at each stage in the hierarchy of jobs within a district is a promotional decision, one which depends in large measure on teacher evaluation methods. One would expect the sort of filters which characterize teacher evaluation at various stages in a teaching career to be reflected in non-trivial ways in the school districts' initial hiring decision. Consequently, research on promotional processes, teacher/administrator evaluation and initial screening/hiring decisions would most efficiently be carried out under the same research design and most likely by the same researchers.

The ways in which individuals and groups in an employment relationship interact is generally believed to be an important, if not the most important, part of the motivational and incentive structure for personnel. In this respect, educational organizations should be no different than other organizations of professionals. The traditional social psychological variables focusing on the degree of participation in decision

making, various leadership and administrative styles (e.g., democratic) and methods of conflict management can also be expected to be of interest in educational organizations. Unfortunately, the empirical evidence of the effects of such phenomena on behavior and performance is very mixed.* Reasons for the generally inferior empirical research in this area stem both from the rather clear advocacy position of researchers in this area and from the nature of research instruments used. For example, most research on degree of participation in decision making use attitudinal measures of "felt degree of participation" rather than measures of actual participation. Clearly how one feels about the degree of participation in decision making is related to the difference between actual participation and expectations regarding participation. Expectations are clearly conditioned by and adjust to experience. "More participation" raises expectations for future participation. Failure to notice the interaction between performance and expectations in interpreting interview responses is a common methodological flaw in such studies.** For many of these reasons, such research should perhaps be lower on the list of priorities than other research recommended here.

*For a flavor of the discussion/debate see: Strauss, "Some Notes on Power Equalization" in Leavitt, H., The Social Psychology of Organizations which points out there are costs as well as benefits to participative management and the insightful, if somewhat one-sided, exchange between Chris Argyris and Herbert Simon in the Public Administration Review, July/August, 1973.

**An exception is Mohr, Lawrence B., "Authority and Democracy in Organizations," Institute of Public Policies, University of Michigan, 1975, unpublished.

C. Parameters of and Constraints on Personnel Processes

Increasingly, the patterns of personnel flows into and through educational systems are guided and constrained by factors involving outside groups. Teachers unions negotiate prominent features of the employment contract with the school board and district administration. Conventional (e.g., economic) theories of the interface between school districts and their dominant labor markets would predict a considerable decline in relative prices for teachers. In the absence of important institutional phenomena this would undoubtedly be true. In fact, teachers' unions not only affect compensation decisions but, through negotiation, specify a range of administrative procedures and possible teaching techniques.

Clearly, the results of negotiations between teachers' unions and school districts constitute, together with financial resources, the single most important set of parameters for district personnel processes.

> "Much descriptive literature exists in the area of collective negotiations. We know, for example, about the history of teachers' unions, the similarities and differences between unions, and the details of pertinent state laws. On the other hand explanatory work, especially that which is backed up empirically, is only beginning. There is no theoretical base for collective bargaining in public education; we know little about the factors influencing the outcome of negotiations, or the effects of bargaining on organizational structures and processes."*

*Gerwin, D. (ed.), op. cit.

Labor market forces are important exogenous parameters for personnel processes, but those forces are interpreted by and filtered through institutions like unions before affecting outcomes. The negotiation process itself needs to be researched. Such research should focus not only on the bargaining process and what outcomes are likely, given positions and expectations of the protagonists but also how positions and expectations are formulated by the parties. Both the district and the union, for example, could be expected to formulate positions that reflect prior bargaining outcomes. The district could be expected to be responsive to budgetary pressures and labor market conditions. The union, on the other hand, could be expected to respond to bargaining "successes" of unions in "comparable" districts. The sort of research done by Gerwin in modelling the bargaining process with respect to compensation in suburban Milwaukee school districts* needs to be extended to other classes of districts and to non-wage issues.

D. System-Wide (Within-District) Processes

i. Overview

The nature and basic structure of the functional components of educational organizations depends on a variety of system wide processes at the school district level. Schools, at the district level in particular, represent a wide and shifting coalition of community interests; the change in response patterns and functional processes of school districts are, in part, the result of changing coalition patterns.

---

*Gerwin, D., op. cit.

One can examine the impacts of changing organizational coalitions and governance structures in terms of the selection of particular problems from among a multitude to receive major attention, the prioritizing of issues and their delegation, and the establishment of evaluation criteria for organizational activities and performance. A set of research programs designed to understand the ways in which such system-wide processes and pressures translate extra-system events into intra-system routines would emphasize the relationship between form of governance structure and system attentiveness and response to a variety of external demands, the study of the effects of the development and maturation of coalitions and their influences on particular organizational processes and routines and an analysis of issue generation and goal formation in the immediate external environment of school districts.

An additional and fundamental set of questions about "system-wide" processes concerns the linkages between the kinds of common functional processes identified in Section III.B., above -- theoretical Research Recommendations 4 and 5, discussed in Section II. Educational organizations, like many others, can be characterized by the fact that many things go on simultaneously and although internally coherent, any given process is only loosely-coupled to other processes. Other things that go on appear independent but in fact turn out to be interdependent -- an administrator attending to one problem may be forced to ignore another. A superintendent tied up with union negotiations may simply not consider a curricular change proposal.

The fact of the matter is, very little has been done to clarify the relationships between local political pressures and events and institutional processes or the relationships between institutional processes. The kind of "process histories" of school districts which would trace relationships between system functional processes and the local environment and the linkages/interactions between particular functional processes -- budget and personnel -- and aid in formulating hypotheses and research designs does not exist. A high priority task for NIE would be to commission a series of process(es) histories for several school districts. What changes were made, when, in response to which external events? What ongoing processes interacted on which occasions and with what results? In particular, before mounting a significant research effort on either particular functional processes found in educational institutions or on the linkages between such processes, a small number of studies should be commissioned which focus on a given school district and attempt: a) to identify existing SOPs (Research Recommendation 2), b) examine the response of these SOPs over time and under a variety of conditions (Research Recommendation 3) and c) examine linkages -- systematic and ad hoc between these processes (Research Recommendations 4 and 5).

ii. Structures and Adaptiveness

Governance structures are the object of manipulative efforts by partisans in many local school districts. Unfortunately, neither what is meant by "responsiveness" nor the relationship between "responsiveness"

of various governance structures (e.g., centralized/decentralized) and different types of demands is well understood. A number of organizational studies have considered "degree of centralization" as one of a number of structural features affecting response to environmental pressures. Needed are studies which identify the types of demands placed on governance structure and the correlates of effective demand response. From the discussion above, it is clear that the structure of individual functional processes is different from the structure of linkages between them; budgetary processes can be centralized and curricular planning can be decentralized in the same district. Studies of structure-responsiveness relationships that assume the same structure across all school district functions are to be avoided as are those that do not specify what is meant by "responsiveness." It is also advisable that "structure-responsiveness studies" be deferred until a few "process histories" in individual school districts are completed.

E. Institutional Linkages

Educational organizations are embedded in larger networks of institutions and markets that appear to grow more complex and more influential. The nature of these institutional linkages is poorly understood and poorly defined. While in general one can say that these linkages serve to move people and ideas, influence people, and channel dollars, we lack both precise terminology and relevant theory to describe such movements and influence. This section specifies three sets of empirical linkages that deserve further research and investigation:

linkages affecting resource seeking and resource allocation; linkages affecting personnel flows; linkages affecting curricular planning. Each of these has important relationships with particular functional processes as well as the system-wide processes discussed above. In addition to their contributions to research identified in Sections III.B and C., above we believe the linkages themselves are of sufficient importance to justify independent research.

i. Linkages Affecting Resource Seeking and Resource Allocation in Educational Organizations

While the proportion of local district revenue supplied by state and federal governments has grown only gradually in the past 10-15 years, the total amount of such external aid and the complexity of regulations and procedures accompanying such aid have increased dramatically. These changes have posed substantial problems of adaptation for local districts.

Most state aid programs and some federal programs involve the operation of complicated formulas that allocate the total aid among eligible districts.

Some sources of state and/or federal aid restrict the types of students who are to benefit or the types of materials or services to be purchased with such aid. Some grant programs impose requirements concerning "community" participation in decisions governing expenditure of the money. Still other requirements deal with affirmative action in employment and "comparability" requirements which are designed to insure

that the specific grant is not to be used to reduce the level of local expenditures in the schools. The proliferation of categorical programs at the state and federal level and the resulting demands for "proposal writing" to get federal and state money have spurred the formation of state and federal programs offices at the local level and have injected new actors into the budget making process. The state financial system of which any school district is a part represents one important class of external linkages which bind together resource allocation/revenue generation processes in individual districts.

Finally external linkages serve to diffuse ideas concerning budget making, resource allocation, revenue generation practices and accounting practices among districts. Since the manner in which the budgeting process is conceptualized and the nature of reporting of financial flows affects budgeting outcomes, more research is needed concerning the external linkages that serve to promote and make districts aware of budgeting and accounting practices. While it appears that budgeting and accounting practices in educational systems are tied to are an imitation of and/the practices in other public organizations, the details of such influence networks would prove most useful for implementation strategies for "better" procedures. To what extent such diffusion processes are similar to fads/fashions or to the spread of a superior technology based on proven performance is an empirical and researchable question.

A research program designed to identify the various sources of new funding and allocational ideas, the pattern of communication

flows which transmit ideas to school systems and the ways in which new ideas are received, evaluated and processed by the educational system would contribute greatly to our understanding of how resource allocation/ revenue generation processes of local adaptation themselves change over time.

In researching the hard financial linkages imposed by State-wide educational finance formulas and the availabilities of State and Federal categorical funds, the traditional research questions surrounding general vs. categorical grant programs appear prominent. E.g., economists have long studied the degree to which categorical grants merely substitute for local funds; to what extent is categorical money "laundered" or converted into general support monies? Research strategies similar to those employed for grants to urban governments should also be employed for examining grants/aid to school districts.*

To what extent are local financial planning processes merely a reflection of State regulations? Before embarking on a large study of the impact of State and Federal funding programs and financial planning regulations on local district processes it is recommended that NIE support a detailed, descriptive study of such linkages within a single State. Several studies have been completed on the differential impacts of State Educational Expenditure Equalization formulas on the population of local school districts (e.g., Wilensky, op. cit.). Similar studies are needed but focusing on financial planning, resource allocation and revenue generation practices rather than per pupil expenditures.

*See Wilensky, Gail, State Aid and Educational Opportunity Sage Publications, 1969.

Research on the diffusion of new ideas (e.g., PPB or new tax structures) in the financial planning sphere would be best conducted using the schema outlined in Research Recommendations 6 and 8 through 12, above (see Section II) and using a research design similar to the one presented for linkages among curricular planning processes in the next section (III.D.ii.).

ii. Linkages Affecting Curricular Planning

Educational programs, in terms of both their content and the delivery techniques employed are profoundly affected by a variety of institutions which lie outside or on the periphery of any particular educational system. These external institutions are the sources of important stimuli and ideas which may necessitate direct responses by particular school districts or may augment the choice set from which responses to other stimuli are drawn. Ideas or proposals generated by different types of external organizations are received and processed very differently from one another, enter the decision making process at different levels and with various intensities, and generate a wide range of organizational responses; it matters whether a proposal comes from a School of Education, an NSF-funded project or a book publisher. Our current knowledge of the educational system gives us a fairly good idea of the kinds of institutions that impact the educational process itself. For example, we believe that State Departments of Education, professional organizations, educational specialists in the mass media, textbook publishers, and demonstration projects generate signals, stimuli, and information that

is systematically transmitted to the system of education-delivering and is eventually translated into new programs and curricula. We do not have a good understanding of the types of outputs of these external institutions, the paths through which they flow, and the precise ways in which, at the local level, they are translated into an operating curriculum.

We suggest a research program that deals with the first two of these three gaps in our knowledge -- the nature of the outputs of a set of important "influencing" sources and the paths through which these outputs flow to the educational system delivering the curriculum. Six institutions appear to have the most important effects on the content and delivery techniques of educational programs:

(1) Federal agencies

(2) State Departments of Public Instruction

(3) Professional organizations (teachers, administrators, boards of education, and their publications)

(4) Educational specialists in the mass media

(5) Producers of educational materials (textbooks, teaching aids, etc.)

(6) Research and Development Centers and demonstration projects

Valuable research could be funded for the study of each of these types of institutions and associated diffusion networks. Research should emphasize an empirical investigation of the types of stimuli, signals and information which are generated by each of these "influencing" institutions and the ways in which different types of information signals, stimuli are transmitted to

the educational system. The nature of these linkages may differ according to the particular external institution, by the types of information being transmitted and may depend upon characteristics of the local school district or social and political characteristics of the larger environment in which both the educational organizations and the "influencing" organizations are imbedded. What flows from generating institutions to school districts and how?

Institutional Focus.

The U.S. Office of Education (OE) and other federal agencies administer various programs and provide grants to both State and local educational institutions for curriculum and instructional purposes. The constraints generated by the agencies are many and at times some constraints are contradictory to program goals. One example of this is the Berkeley School District which received a federal grant to establish alternative schools and then an injunction because the grant implementation was increasing segregation of the then-integrated student population. What kinds of constraints are generated by federal agencies? Are these rules and regulations interpreted and administered consistently by personnel in the ten regional offices through which OE administers its programs? What has been the effect of OE regionalization upon State and local institutions especially those local school districts which have court-ordered compliances and are dependent upon federal sources? In dealing with the fifty States does OE tend to have uniform approaches and a unifying effect?

State departments of education may promulgate specific rules regarding the nature of the curriculum. What kinds of rules do such agencies tend to generate? Are they general, or are they specific? How much variance has there been across States and over time in the types of things that State departments of education concern themselves with? Do different school systems in the same States find themselves subjected to different rules and regulations?

The specification of curriculum changes by the State agency must pass through some transmittal network. Who "gets the word" from the State agency and sees that new regulations are implemented? What enforcement powers does the agency have to see that what it wants in fact get done? How do these implementation mechanisms vary across school districts, across States and across time? Is the agency more successful in enforcing some types of rules than others?

Professional organizations have both different powers and different concerns from State agencies. What aspects of school curriculum do such organizations concern themselves with? In what form are these ideas transmitted? Do they seek to implement their ideas by influencing the state education department, publicizing their ideas in the mass media or influencing components of the educational system directly (parents, teachers, administrators)?

Educational mass media tend to be an important transmittal device for the ideas of others rather than the generator of original ideas or information. Mass media can be used by educational organizations

to transmit ideas to the public, can carry the results of demonstration projects on the effects of new curricula in other educational organizations. What kinds of things do the mass media pick up? What groups within the educational organization pick this information up and what do they do with it? Are there filtering mechanisms to filter useful information from noise?

The curriculum depends critically on the types of "teaching aids" employed in the classroom. How do the producers of such materials make their availability known? What persons in the educational organizations are contacted? How are they contacted? Do the producers use the mass media? Do they try to influence teacher organizations and state agencies? Who is responsible for choosing and what criteria do they use for choice?

Demonstration programs, if funded by the Federal government probably diffuse through the same sorts of channels utilized by the Federal agencies above. In general because of their ad hoc nature and short institutional lives, demonstration projects, if their results are diffused, utilize existing networks. What are those networks?

Program Focus

Instead of looking at a particular institution and examining the type of signals it generates and the paths over which it travels, we could start with a particular curriculum change and work backwards tracing the mechanisms through which the idea was adopted. For example, one might take the New Math as a major curriculum change. We would want to examine the role that each of the above institutions and associated linkages

had in the adoption of the New Math. How did the idea gain prominence? How and when was it picked up by each of the above institutions? What role did each have in its final adoption? What role did each have in its evaluation? A program approach has the distinct advantage of examining the interaction of these institutions when faced with a common program change. It has the disadvantage of not giving one a feel for the consistency of the relevant linkages when faced with different kinds of curriculum changes. The program approach would also tend to focus on major changes and therefore not analyze the nature of day-to-day information flows and linkages leading to marginal changes in the curriculum.

Research from both the institutional focus and program focus sides should be encouraged.

iii. Linkages affecting personnel flows.

The nature of the adaptations that educational systems make in response to changes in their environments depends critically on the quality, quantity, cost, training, and world view of the personnel who are available for employment within the organization -- on the labor market which links teachers to one another. The responsiveness of the supply of teachers to changing training requirements, changing professional image, changing wages, changing teacher conditions, changing labor market conditions and professional opportunities and changing social values is not well understood. The teaching profession must compete with other professions for personnel, but the nature of this competition is obscure: it

certainly depends upon more than just wages. The lead time between the decision to become a teacher and actual certification may be as much as two years even for a person close to the completion of a bachelors degree, indicating that an aggregate supply response may be slow and sensitive to the undertainties of the labor market. The individual-level research on the decision-to-enter the teaching profession recommended above (Section III.C.iii.) should contribute directly to -- or should be conducted prior to research on labor market response. The market for teachers always appears to be in a state of disequilibrium -- teacher shortages and teacher gluts appear to be the rule rather than the exception and at both the aggregate and disaggregate levels (History vs. math, elementary vs. secondary teachers). Exactly why such continuous disequilibrium should exist and what the effects of these conditions are on the flows of teachers into school systems are on the flows of teachers into school systems, between school systema and between schools is not well understood. The increasing power of teachers' unions complicates the explanatory problem even further. The labor "market" for teachers never seems to equilibrate. It contains an important institution -- unions -- which reinforces existing wage stickiness and, counter to classical economic theory, even increases wages in the face of excess supply and strengthens personnel policies such as tenure and pension rights that reduce supply adaptiveness at a time when (from a market equilibrium point of view) it is needed most. Unions have also shown an increasing interest in non-wage issues such as class size, teaching

hours and curriculum. All things considered the structure of the labor "market" for teachers has important implications for the behavior and performance of educational systems.

The emphasis of research in the area of the market for teachers should be directed at gaining an understanding of the determinants of the supply of teachers available for employment.* One may conveniently break the labor supply problem into three areas for study -- (a) new entry into the labor market, (b) turnovers and (c) job search. In addition the effects of unionization on those things that affect the three aspects of labor supply needs to be investigated as well as the dynamics of supply/demand interactions which lead to market disequilibria.

The variables that affect rate at which newly certified teachers appear on the job market is closely tied to the decision-to-enter the teaching profession -- what are the macro (market) implications of individual-level decisions? What kinds of occupations does "teaching" tend to compete with? How important are wages in affecting the supply of teachers? How are wage expectations formed? Do markets for entering teachers tend to be local, regional or national? What other social and demographic variables determine the supply of teachers -- the availability of alternative occupations for women would be an important thing to investigate.

---

*A primary one is bound up in the individual-level decision to enter the teaching profession, usually made in the context of choosing a college major.

There are a number of approaches that can be taken for gaining insights into these questions. Statistical analysis of new certifications, wage levels, vacancies and demographic characteristics could be very helpful in identifying the impact of the variables that traditional labor market theory indicates should influence labor supply. Statistical analysis of a national cross section of similar data over time could also lead to an understanding of the "regional" character of teacher labor markets. A study of 'wage contours" may be helpful in isolating the kinds of occupations that tend to compete with teaching. Sociological analysis of occupational choice would also be of great value. Certainly Gerwin's research* on wage policies for the Pittsburgh School Districts suggests large urgan districts compete in markets spanning several states where his research on suburban Milwaukee districts' wage policies suggests the results of sub-national competition of large urban districts by providing the context or point of reference for local/regional competition and suggests unions play an important role in the trickle-down process. What is the structure and overlap of this hierarchy of markets and submarkets? How does this structure change in response to aggregate surplus-scarcity conditions?

Both the availability of a teacher pool and the necessity of drawing on it depends on the tendency of teachers to leave their jobs. What is the nature of teacher turnovers? Do teachers tend to leave teaching for other occupations? Do they leave for higher wages in other

*Gerwin, D., Budgeting Public Funds, op. cit.

school districts? Do they leave to be in "better" schools? Do they leave for promotion opportunities in other schools? The answers to many of these questions depend in part on the nature of internal labor markets that has been presented above. However external conditions in the market for teachers (wages, vacancy rates) as well as conditions in other labor markets certainly have an effect. The effects of both internal labor market policies and external labor market conditions should be investigated. This research might examine particular cohorts of teachers as they work their way through the system, analyze a cross section of aggregate data, or do a case study of a particular school system and the evolution of its labor force. The empirical research should exploit existing social science theories of job turnover to the greatest extent possible.

The way in which teachers search for jobs is an important parameter in market definition. Do they look locally only, regionally or nationally? How do they find out about job vacancies? How do conditions in the labor market affect the timing and duration of search?

The advent of strong teachers' unions is relatively new; the opportunity of comparing labor market conditions before and after unionization in a particular area as well as between unionized and non-unionized areas should be exploited as a means for quickly uncovering the dynamic properties of unions in education. Such intertemporal and cross-sectional studies would be desirable. They should be aimed at answering the following types of questions: What is the affect of unionization on teachers wages and internal wage structures? What is the effect of unionization on non-wage issues such as class size and teacher preparation

time? Does unionization appear to take place in districts with a particular set of characteristics?

F. Priorities

In this section, the general theoretical approach to change and adaptation in educational institutions has been applied to some of the more prominent of the component processes of change and adaptation in local school districts. The discussion suggests the general sequence of research tasks implied in Figure 1, above. It further suggests applying the Figure 1 - theoretical research agenda to a sequence of functional processes -- i.e., resource allocation/revenue generation, curricular planning and personnel processes and flows. There is no obvious priority attached to each of the functional processes, as long as they are all, in some sense, fundamental to the operation of school districts. In essence too little is known about the relative importance of the various processes to educational outcomes to assign priorities.

Given the relatively primitive and fragmented state of our knowledge of change and adaptation processes in school districts it seems prudent that NIE support one or two comprehensive studies of processes in a particular school district before commissioning larger studies and samples -- hypotheses better informed by empirical research are needed.

An additional way to organize research and to assign priorities is to use a particular policy question as the organizing concept.

IV. POLICY ORIENTATION

In earlier sections of this report we have suggested that an agenda for basic research on educational organizations may be constructed using a framework sensitive to both theoretical concerns and to the fundamental organizing processes of educational systems. Conceptual frameworks are essential to organize a research agenda. Yet, by themselves, they obviously admit of an almost limitless number of specific research projects.

Both as a means of further delimiting the general research strategy and to emphasize the value of research to the management of educational systems, a test of "policy relevance" can be applied to research in this field. The "fundamental processes" schema for research outlined in the previous section guarantees at least a minimum degree of research relevance by focusing on existing operations: this section provides a somewhat stronger focus.

A clarification of our intent is vital. Educational policy-makers are concerned with the assessment of various policy options as alternative ways to achieve educational goals. Such considerations occur in the context of a specific educational system, and normally require some assessment of the feasibility and impact of a given, proposed policy change. For example, as was suggested by these activities above, a policy change may be addressed to the creation of a specific plan to reform school finance in a given State. Although highly focused studies of this sort are of importance to educational policy-makers, this type of research should not

be supported within this agenda. Rather, the research supported by NIE with a "policy" focus should relate to the effects of one or more policies under a wide range of conditions to learn under what circumstances one policy or another is an effective instrument of change and how these circumstances are related to the efficacy of the policy. Rather than focusing on a narrow policy in highly specific circumstances, such research attempts to develop general conclusions of value to the policy maker when one or another policy response is appropriate; the importance of generalizability (Recommendation 1) and basic research on fundamental functional processes is obvious. In the school finance example cited above (Section I) policy research might involve the study of the effectiveness of different finance reforms used in states with important similarities or the same reform used in states with differing characteristics would be made so as to allow useful generalization of the research results.

Policy research may also focus on different aspects of the policy or policies under study. For example it might attempt to identify the implicit assumptions different policy options make about organizational behavior, individual goals, the role of government, etc.; assumptions which may themselves by subject to empirical test. Or the research might consider the implementation process and the relative effectiveness, under different circumstances, of policies which modify existing standard operating procedures or those which either replace or bypass standard procedures. Policy research might also evaluate alternative compliance strategies, examining how policies are communicated in terms of clarity

and coverage, and the conditions under which groups do or do not comply with the policy or press the system for compliance. Finally such research might also study the unintended consequences of policy decisions, what factors create such consequences, and methods to reduce their occurrence.

"Policy-oriented research" does not begin with policies per se but rather with the study of those basic organizational processes which yield theoretical formulations and empirical results of clear relevance to the related, but distinct, task of policy research. In terms of the school finance example, we would anticipate that policy research on alternative school finance reforms would uncover a need for models and empirical evidence to help predict changes in local district resource allocations in response to changing levels of state support. Linkages between resource allocation and curricular planning would also be required. What is affected by a change in finances (teachers' salaries, class sizes and/or the curriculum)? What is affected depends in large measure on how exogenous changes are translated into organizational outcomes by loosely coupled organizational routines. Such models are a product of basic, "policy-oriented" research. Basic research should be designed and carried out in anticipation of the larger need for building a conceptual and empirical base that will serve the needs of policy research and, when joined with data from and judgment applied to a specific context, will aid specific policy-makers to meet their responsibilities more intelligently and purposely.

A common class of "policy" questions involve assessment of the effects of various kinds of external intervention. The independent

variable in policy oriented research is a policy action: a change in the law, a change in the level of resources, etc. The dependent variables are the consequences of the action: what it costs, the effect on some learning objective, a shift in decision mabing influence, or a change in a decision making process. Research would seek to explain how and why existing processes in districts produce certain kinds of results and how the processes themselves change.

One immediate implication is that basic research projects should be preferred where they address the effects of interventions in educational systems. Knowledge of such effects is of crucial importance in assessing alternative policy intervention choices. Thus for example, a research study whose design includes the examination of budget processes both before and after a discrete policy intervention occurs should be favored over a study that proposes only to examine on-going processes in the absence of an intervention.

The desirability of such "before and after" studies, coupled with the fact that organizational adaptation is often a slow process, leads to the obvious conclusion that basic research in this field should be conducted on a longitudinal basis where change processes can be examined over a period of time; the appropriate time frame can be expected to vary with the process under examination. Careful evaluation of the conditions existing prior to the intervention becomes critical as does analysis and control of parallel effects that may occur and cloud the identification of the effects attributable to a particular intervention.

Cross-sectional studies in which the state of organizational processes are sampled at only one point in time should only be funded if these organizations have been carefully selected to control for differences in organizations (a very difficult task) and allow for identification of intervention effects.

There is an additional implication to be drawn from earlier sections. Organizational processes are complex, inter-related and often subtle. A thorough understanding of such systems requires a scope of continuous effort larger in size than has been the practice in past organizational studies. One cannot deny that there are instances where one or two person teams can achieve significant results. In general a preference exists for basic research to embrace larger teams of investigators with very different (disciplinary) perspectives on the grounds that such teams are more likely to grasp and explain the complexity of educational systems.

Building a basic research program around particular policy questions/interventions is relatively easy to do whether by:

tracing interventions through the system from point of immediate impact (e.g., state financial aid) translated through a "primary" functional process (e.g., aggregate resource levels translated through resource allocation processes), linked to other processes (e.g., curriculum planning and personnel) into other and indirect outcomes (e.g., cuts from extracurricular activities, abandonment of experimental course, no new hires, etc.) or

working backwards from outcomes through processes affecting those outcomes to inputs.

V. CONCLUSION

A productive research program must be well conceived. It must also be well implemented. In this section some next steps for the National Institute of Education to mount a research program on organizational factors in education are suggested. In so doing, the context for such a program and the desirable characteristics of the implementation process are considered.

The Context

The following premises underlie the recommendations:

1. The organizational research community is small, uneven in quality, and currently devoting very little energy to the study of educational organizations.

2. The major significance of this documen: is that it is a joint product of organization theorists, related social scientists, and practitioners within educational organizations who came together with no common agenda. One was discovered during our discussions. This report is evidence of a new and potentially productive group of colleagues. But the report has undoubtedly little force if the nascent group which conceived it or one likt it fails to sustain its involvement.

3. The organizational research community is physically dispersed among a number of universities and other public and private research organizations. While sharing a common intellectual commitment, physical dispersion inhibits effective communication and prevents coordinated, cumulative research.

Characteristics of Implementation

The current context for this program of research suggests that plans for its implementation have the following characteristics:

1. To overcome the inadequacies in the informal organization of the community of organization researchers, a program of research should be more tightly structured than is ordinarily the case in basic research programs. This need for structure arises from the desirability of sponsoring research which shares a common conceptual framework and which is managed so that empirical efforts and results can be shared, are cumulative and new theoretical insights can be jointly developed and elaborated.

2. The program should have stable sponsorship and be able to make intellectual and financial commitments on a multi-year basis.

3. The program's leadership should be lodged firmly in the research community. This is essential for attracting the energies of top quality researchers and for ensuring that research results are circulated throughout the research community. The resulting program should have a strong degree of autonomy and a sense of mutual obligation on the part of the participants.

4. While autonomy is desirable, the potential abuses inherent in autonomy must be minimized through governance arrangements that insure oversight of the program by the larger social science community (e.g., professional publication expectations) and representatives of practitioners.

5. This report proposes basic research but it does not imply that organization research can be sponsored only by the NIE or only by the

basic research section of NIE. Organization research should also be funded in the program and dissemination areas of NIE. Such research should be managed in those units to insure responsiveness to their policy needs as their developmental programs proceed. Since concerns with organizational research span the substantive interests of research, program and dissemination units within and without NIE, the research program proposed in this report should be flexible enough to permit intellectual connections and funding from any one of them.